DOCTORAL THESIS

The Association Between Corporate Governance, Risk Assessment and Debt Contracting

Aldamen, Husam

Award date:
2010

The Association between Corporate Governance, Risk Assessment and Debt Contracting

A Dissertation Submitted to the School of Business in Candidacy for the

Degree of Doctor of Philosophy

By

Husam Aldamen

Bond University

Gold Coast, Queensland

Australia

July 2010

STATEMENT OF SOURCES

To the best of my knowledge and belief, the work presented in this thesis is original, except as acknowledged in the text. All sources used in the study have been cited, and no attempt has been made to project the contribution of other researchers as my own. Further, the material has not been submitted, either in whole or part, for a degree at this or any other University.

_____ _____

Husam Aldamen Date

ACKNOWLEDGMENTS

Firstly, I would like to thank the All Knowing who taught humanity that which it knew not. Secondly, the completion of this PhD thesis would not have been possible without the generous support of family, friends, colleagues and my supervisor, Associate Professor Keith Duncan.

I owe great gratitude to Keith for his support and encouragement during the often difficult periods in the PhD process. Keith did not only motivate me when I was experiencing self doubt but he also inspired me to overcome numerous obstacles throughout this challenging process. I admire Keith for his patience and wisdom, but most importantly for his selfless attitude towards improving, empowering and advancing his students. I would like to offer my sincere thanks to Keith for his guidance and friendship.

Thank you to Bond University and the Faculty of Business, Technology and Sustainable Development for granting me the opportunity to study at this amazing University. I would also like to thank Robert Stable, Garry Marchant, Ray McNamara, Jan Hollindale, Safdar Khan, Gulasekaran Rajaguru, Andrew Trotman, Tobias Hahn, James Routledge and Pam Kent for their valuable contributions.

A final thank you goes out to my family. My parents, wife and children supported me in ways that are unimaginable. In particular, I would like to thank my wife who never wavered during my low points and who nurtured this project and treated it as if it was her own. I dedicate this thesis to my mother, father, wife and children, Shahd and Monther.

ABSTRACT

This thesis examines the relationship between corporate governance, risk assessment and debt contracting within the Australian context where companies are heavily reliant on intermediated debt financing. The Debt Contracting Model (DCM) posits that higher levels of corporate governance decrease the variability in cash flows and reduce the probability of default (reduce default risk) and correspondingly also increase the quality of value-relevant information disclosed (reduce information risk). As a result of influencing risk assessment, higher levels of corporate governance are expected to increase access to the quantity and type of debt and to lower cost of debt.

The empirical evidence largely supports the relationships proposed in the DCM. In particular, higher levels of corporate governance are associated with an increase in access to bank debt through the reduction of risk. Furthermore, there is evidence that higher levels of corporate governance lower the cost of debt for all debt types via the impact on risk assessment. However, these results are driven by the larger companies. The evidence shows that smaller companies do not access more quantities or types of debt nor do they pay lower cost of debt in the presence of higher levels of corporate governance.

These results add to the body of accounting research by establishing the importance of corporate governance for debt contracting in markets that depend heavily on intermediated debt. More importantly, the evidence suggests that there is a lower cost-benefit trade-off for smaller companies than larger companies at least in terms of increasing access to debt and reducing cost of debt. Consequently, this study could assist regulators in raising questions about the merits of the universal adoption of costly corporate governance.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE: INTRODUCTION

1.1 OVERVIEW

The recent corporate collapses in the United States (US), United Kingdom (UK), Australia and other parts of the world raise questions about the efficacy of contemporary governance in corporations. Regulators worldwide have responded with requirements for companies to adopt improved corporate governance practices. Higher levels of corporate governance increase disclosure of financial information (Chen and Jaggi 2000; Eng and Mak 2003), enhance the quality of reporting and contribute to the reduction of information asymmetry between managers and capital providers (Lang and Lundholm 2000; Core, Holthausen, and Larcker 1999). Furthermore, an increase in financial information facilitates monitoring of management and mitigates agency conflicts amongst corporate stakeholders (Gompers, Ishii, and Metrick 2003; Baiman and Verrecchia 1996; Botosan 1997; Core et al. 1999). As a result, the informational advantages brought about by implementing higher levels of corporate governance enhance decision making quality, thereby contributing to the prevention of potential corporate crises (Johnson, Boone, Breach, and Friedman 2000).

This thesis focuses on the impact of higher levels of corporate governance on the nature and cost of debt contracting relationships via the reduction of default and information risk. For debt contracts, corporate governance affects borrowing parameters such as access to and cost of debt (Sengupta 1998; Bougheas, Mizen, and Yalcin 2006; Ashbaugh-Skaife, Collins,

and LaFond 2006; Anderson, Mansi, and Reeb 2004; Mansi, Maxwell, and Miller 2004a). However, most of the research on debt contracting has largely focused on publicly traded debt. To date, there is limited research addressing the impact of corporate governance on debt contracting in markets dominated by intermediated debt, a distinctive characteristic of the Australian market. This thesis addresses this gap in the literature by examining the relationship between corporate governance and access to debt and cost of debt, in the presence of default and information risks (risk assessment). Additionally, this study explores the relationship between company size and debt contracting by examining whether higher levels of corporate governance benefit small companies in gaining greater access to debt at a lower cost.

The rest of the chapter is partitioned into six sections. Section 1.2 provides the motivation for the thesis. Section 1.3 addresses the research question, which guides this thesis. Sections 1.4 and 1.5 discuss the conceptual framework and the methodology used in this study. Section 1.6 lists the objectives that this thesis aims to achieve. Section 1.7 describes the contributions of this study. Finally, section 1.8 presents the organization of the thesis.

1.2 MOTIVATION FOR THE THESIS

Three factors motivate the exploration of this topic. The first motivating factor is the sparse accounting research on the relationship between corporate governance, access to and cost of debt. The majority of literature focuses on partial aspects of the relationship between corporate governance and debt contracting (Anderson et al. 2004; Ashbaugh-Skaife et al. 2006; Bhojraj and

Sengupta 2003; Klock, Mansi, and Maxwell 2005; Abor 2007; Berger, Ofek, and Yermack 1997; Wen, Rwegasira, and Bilderbeek 2002). An exception is a study by Funchal, Galdi, and Lopes (2008) which addresses the impact of corporate governance on both access to debt and cost of debt. Similarly, the current research stresses the importance of studying the relationship between corporate governance and access (quantity and type) and cost of debt contracting. The relevance of exploring the two debt dimensions in the one study lies in the sequential structure of debt contracting. Companies attempt to access debt capital and then negotiate the cost of that debt.[1] The lack of empirical examination on the impact of corporate governance on both access to debt and cost of debt has prompted this study.

The second motivating factor focuses on the method used to examine the association between corporate governance, risk assessment and debt contracting. Unlike prior research that assumes a direct relationship between corporate governance and debt contracting, the current study theorises that corporate governances operates via risk reduction thereby influencing access to and cost of debt. A significant empirical implication of the underlying theory in this thesis is the use of a two stage least squares (2SLS) regression in addition to an ordinary least squares (OLS) regression to examine the impact of corporate governance on the debt contracting dimensions.

The third motivating factor centres on the absence of a study that examines the relationship between corporate governance and debt contracting within an Australian context. Prior studies examine partial aspects of the latter

[1] This thesis is focused on the companies that are able to access interest bearing debt and explores the governance and risk impacts on the quantity, type and cost of debt for those companies. It is left to future research to examine the influence of corporate governance and risk characteristics on those companies that are unable to access interest bearing debt (see discussion in chapter five).

relationship in countries such as the US (Ashbaugh-Skaife et al. 2006; Mansi et al. 2004a; Pittman and Fortin 2004). However, little attention has been placed on studying the impact of corporate governance on debt contracting within the Australian financial market, which has distinct corporate finance and governance structures relative to other markets.

Debt financing is an integral component of Australian companies' capital structure. The current study finds that the ratio of total liabilities to total assets for Australian companies is approximately 45%, which indicates that nearly half of corporate assets are financed by debt. Since this is a strong signal that debt contracting is vital for corporate Australia, it warrants further study and analysis. Furthermore, the results reported by this research indicate a predominance of intermediated debt over other debt types. Findings indicate 57% of interest bearing debt is sourced through financial intermediaries.[2]

Australian companies have traditionally relied on intermediated debt, also known as private debt, to finance their operations (Reserve Bank of Australia 2005a). In September 2008, intermediated debt was recorded at AU$1,575.5 billion, which represents 45% of total lending in Australia (Reserve Bank of Australia 2008c).[3] This form of borrowing is transacted via financial intermediaries such as commercial and merchant banks which are considered the most common financial institutions in Australia (Reserve Bank of Australia 2008c, 2005a, 2005b). Loans by Australian banks totalled AU$1363 billion in September 2008, which represents nearly 39% of total lending in Australia (Reserve Bank of Australia 2008a, 2008c). In recent years,

[2] The ratios of total liabilities to total assets and the interest bearing debt to intermediated debt reflect the nature of debt contracting for the sampled companies which are non-financial companies with June 30 balance date (see chapter four for more details).
[3] The reason for using September 2008 data is that it represents the most recent data prior to the Global Financial Crises in late 2008.

syndicated lending, where two or more lenders provide funds to the borrower, has rapidly emerged as an important intermediated debt mechanism (Reserve Bank of Australia 2005b). However, some Australian companies do employ other sources of debt financing, such as non-intermediated, or public debt (Reserve Bank of Australia 2005a).

This form of non-intermediated borrowing is likely to become an alternative source of debt capital for larger publicly listed companies in Australia. The Australian Securities and Investment Commission (ASIC) is considering allowing companies to issue corporate bonds to investors under a simplified prospectus in order to provide opportunities to refinance existing bank debt and to develop the Australian quoted debt market (Australian Securities and Exchange Commission 2009). In September 2008, long-term non-government securities issued by non-financial Australian corporations were recorded at AU$135.6 billion, a 100% increase from the year 2000 (Reserve Bank of Australia 2008b). Larger companies are more capable of accessing public debt relative to smaller companies, due to their ability to absorb fixed costs associated with public debt issues and their minimum issuance requirements (Reserve Bank of Australia 2005a). Nevertheless, intermediated debt currently remains the primary source of financing for Australian companies. In this sense, the Australian debt market is dissimilar to the debt market in the United States and more in line with European markets which depend heavily on intermediated debt (European Central Bank 2002).

In contrast, the United States' debt market is heavily reliant on non-intermediated debt (Teplin 2001). In 2008, corporate bonds issued by non-financial US businesses totalled $3685.3 billion, which represents 20.2% of

debt financing for that sector (Federal Reserves Statistical Release 2008). Furthermore, bank loans for the same sector totalled $1647.9 which represents 9% of total debt financing for non-financial US businesses (Federal Reserves Statistical Release 2008). Prior studies have mostly analysed US companies; hence much of the literature pertains to markets that are similar to the United States (Ashbaugh-Skaife et al. 2006; Anderson et al. 2004; Mansi et al. 2004a; Sengupta 1998; Bhojraj and Sengupta 2003). Other debt markets, such as the European market, share similar lending trends with the Australian market. However, European companies are moving slowly towards issuing their own securities, although bank debt remains the primary source of debt financing (European Central Bank 2002).

Australia also has a distinct corporate governance regulatory environment relative to the United States.[4] The Australian corporate governance principles and recommendations are guideline-based, which means that companies can deviate from best practice recommendations conditional upon providing a reason for the departure (Sarbanes-Oxley Act 2002; Australian Securities Exchange (ASX) Corporate Governance Council 2003b). Australia's Principles of Good Corporate Governance and Best Practice Recommendations (hereafter PGCG) are in direct contrast with the rule-based corporate governance regime in the United States (Sarbanes-Oxley Act 2002; Anand 2005).[5]

[4] The distinction between US and Australian corporate governance structures became more apparent in 2002 and 2003 when the two countries issued their respective corporate governance regulations and principles.

[5] The ASX issued the second edition of PGCG, entitled the Corporate Governance Principles and Recommendations (hereafter CGPR) in 2007 (Australian Securities Exchange (ASX) Corporate Governance Council 2007b).

The sparseness of accounting studies that examine the impact of corporate governance on the access and cost dimensions of debt contracting has stimulated this investigation. Furthermore, the idiosyncrasies of the Australian financial market, in terms of intermediated debt financing and guideline-based corporate governance practices, warrant the exploration of this topic within an Australian context.

1.3 RESEARCH PROBLEM

This study examines the impact of corporate governance, via risk assessment, on debt contracting in the Australian debt market, which is dominated by intermediated debt. Higher levels of corporate governance are expected to decrease default and information risks, thereby increasing access to debt and lowering the cost of debt. The study, therefore addresses the following research question:

"In a corporate debt contracting market characterised by intermediated debt financing, do higher levels of corporate governance impact risk assessment, thereby influencing the access to and cost of debt?"

1.4 CONCEPTUAL FRAMEWORK

The study develops a Debt Contracting Model (DCM) which proposes that higher levels of corporate governance impacts debt contracting by influencing the risk assessment process (Sengupta 1998; Ashbaugh-Skaife et al. 2006). Corporate governance bridges the information gap, improves the likelihood of monitoring management and increases the disclosure of value-

relevant information (Anderson et al. 2004; Pittman and Fortin 2004; Bhojraj and Sengupta 2003). Consequently, companies experience a reduction in agency conflicts and information asymmetries which in turn contribute to decreasing default and information risk.

A company's debt contracting parameters are influenced by many internal and external factors. Nevertheless, the two most important factors in debt contracting are default and information risks (Easley and O'Hara 2004; Vassalou and Xing 2004; Fisher 1959; Duffee 1999; Bougheas et al. 2006; Lambert, Leuz, and Verrecchia 2009, 2007; Francis, LaFond, Olssona, and Schipper 2005). The informational benefits of corporate governance reduce the perceived default and information risks, thereby increasing the company's access to debt (quantity and type) and lowering cost of debt (Ashbaugh-Skaife et al. 2006; Bhojraj and Sengupta 2003; Sengupta 1998; Anderson et al. 2004).

In the presence of higher levels of corporate governance, the debt contracting outcomes are expected to vary depending on the company size. Small firms have higher levels of default risk and information asymmetry relative to their larger counterparts (Binks, Ennew, and Reed 1992; Lean and Tucker 2001; Elfakhani and Zaher 1998; Brewer 2007). Additionally, smaller companies have a lower following by financial analysts, which further increases information asymmetry in these companies (Easterday, Sen, and Stephan 2008; Chang, Dasgupta, and Hilary 2006). As a result, smaller companies access less debt and at a higher cost in comparison to larger companies (Bougheas et al. 2006; Minton and Schrand 1999). This thesis posits that higher levels of corporate governance reduce default and information risks by lowering information asymmetry and increasing financial transparency. Consequently

smaller companies should be able to contract greater quantities and types of debt at a lower cost when higher levels of corporate governance are implemented.

1.5 METHODOLOGY

This thesis employs cross-sectional data from 2007 for 1,239 non-financial companies listed on the Australian Securities Exchange with a June 30 balance date. The archival data was collected from annual reports and database information from AspectHuntley's FinAnalysis and DatAnalysis as well as Thomson Reuters Tick History (TRTH). After excluding companies from the banking, insurance and financial sectors, as well as companies with missing data and extreme outliers, the sample used contained 595 companies.[6]

The research empirically tests the impact of corporate governance, via risk assessment, on access and cost to debt contracting dimensions by estimating OLS and 2SLS regression models. The dependent variables are access to debt and cost of debt. Access to debt is composed of two sub-components. The first is the quantity of debt, which is measured by the ratio of total interest bearing debt to total liabilities (Bougheas et al. 2006). The second is the type of debt, which is measured as the proportion of each debt source amount to the total interest bearing debt. The four debt types are asset finance debt, bank debt, non-bank debt and non-intermediated debt. Cost of debt is measured as the calculated weighted average interest rate for the company's interest bearing debt as disclosed in the notes to the financial statements.

[6] The 595 companies comprise the main sample used in the study. However, the inclusion of the information risk variable causes the exclusion of 390 companies due to missing data and extreme values which results in a sub-sample of 205. The sub-sample is only used when the information risk variable is introduced into the analysis.

Corporate governance is represented by a composite score (Defond, Hann, and Hu 2005). The composite is derived from fourteen individual corporate governance variables, which proxy for management oversight, financial quality, and equity control dimensions of corporate governance. The corporate governance composite variable aggregates the individual corporate governance variables to produce an indicator of the company's corporate governance structure (Defond et al. 2005). A value of fourteen indicates strong corporate governance and a value of zero indicates weak corporate governance.

The study includes default risk and information risk as independent variables. Default risk is measured by constructing a default risk model that uses failed and non-failed Australian companies to produce a Z-score similar to the score estimated by Altman (1968, 1983). Information risk is measured by calculating accruals quality, which focuses on the mapping of working capital into operating cash flows (Dechow and Dichev 2002; Francis et al. 2005).

The testing of the DCM requires the inclusion of additional variables to control for other factors that could impact on debt contracting. Prior research finds that reputation, collateral level and company size are important drivers of access and cost dimensions of debt contracting (Abor 2007; Cantillo and Wright 2000; Wen et al. 2002; Funchal et al. 2008).[7] The current study uses company age as a proxy for reputation. Collateral level is measured as the ratio of fixed assets to total assets. Company size is represented by the log of total assets. This study also includes small and large company size dummy variables when examining the relationship between corporate governance and debt contracting for different sized companies.

[7] Profitability is not represented in the current study due to the inclusion of return on assets, which is a primary profitability variable, in the Z-score variable.

1.6 RESEARCH OBJECTIVES

This study aims to achieve the following objectives:

1. To develop a conceptual framework that explains the interaction between corporate governance and debt contracting.
2. To contribute to the accounting literature by providing empirical evidence on the relationship between corporate governance and two debt contracting dimensions.
3. To fill the gap in the literature by focusing on the interactions between corporate governance and debt contracting within an Australian context, where the financial markets are characterised by intermediated debt financing.

1.7 CONTRIBUTION TO KNOWLEDGE

This thesis contributes to the existing body of knowledge in two ways. First, this study reduces the gap in the accounting literature, which to date has been limited either to the relationship between corporate governance and access to debt or cost of debt, but not to both. It builds on Funchal et al. (2008) by addressing the impact of corporate governance, via risk assessment, on several debt contracting dimensions. Second, this research is amongst the first Australian studies that identify the effect of corporate governance on access to debt and cost of debt. The Australian financial market has a unique financing and corporate governance framework. The Australian debt market is characterised by intermediated financing. Additionally, the Australian corporate governance practices are principle-based which implies that companies have a choice with respect to implementation thereof. Most studies

that focus on corporate governance and access to, and cost of debt are from the United States where companies largely depend on traded debt for debt financing and abide by rule-based corporate governance practices (Anderson et al. 2004; Ashbaugh-Skaife et al. 2006; Bhojraj and Sengupta 2003; Sengupta 1998; Klock et al. 2005).

Accounting firms and financial advisers can draw on the results of this study to provide their clients with informed advice. In Australia, non-audit services, which include financial counsel on risk management, are a significant source of revenue for accounting firms (Green, Hutchinson, Koh, and Walker 2007). These firms could use the evidence from this study to demonstrate the key drivers of access and cost dimensions of debt contracting to their clients. Furthermore, accounting firms could counsel their clients about the relevance of financial disclosure and reporting quality within the context of corporate governance. The evidence from this study could be used to highlight the benefits of implementing higher levels of corporate governance on the debt contracting dimensions. Additionally, the default and information risk models used in this study could offer clients information on the impact of risk assessment on access to and cost of debt.

Finally, this research will assist regulators to understand the impact of corporate governance regulations on business finance and will also improve future regulations. One of the important issues that are addressed is the differential impact of regulations on small and large companies. The ASX Corporate Governance Council Implementation Review Group (2005) focused on governance issues faced by small companies. The ASX Corporate Governance Council (2007a) responded to the claims that PGCG adversely

impose costs on small companies by amending some of the recommendations that were issued in 2003. This study will provide empirical evidence to regulators regarding small companies' adoption of higher levels of corporate governance and the impact thereof, which could contribute to the debate regarding future regulatory changes.

1.8 ORGANIZATION OF THE THESIS

Chapter two reviews literature relevant to this study. The chapter identifies the theoretical foundation for the research and produces hypotheses that test the relationship between corporate governance, access to debt and cost of debt.

Chapter three presents the research design which details the data collection, and the empirical measures used to test the hypotheses. The chapter focuses on operationalising the constructs that are developed in chapter two.

Chapter four provides the analysis of the data. The chapter focuses on the results of the model developed in chapter three. It concludes with a sensitivity analysis to assess the robustness of the results.

Chapter five provides a discussion of the results. The chapter offers limitations of the study, along with suggestions for future research. The chapter presents the conclusion, which summarises the results and the contribution of the thesis.

CHAPTER TWO: THEORY DEVELOPMENT

2.1 INTRODUCTION

Chapter two develops the DCM, which represents the relationship between corporate governance, the default and information components of risk assessment and the access to and cost of debt contracting. The chapter reviews prior literature and distils the key theoretical relationships between corporate governance, risk assessment and debt contracting. Finally, the chapter presents five hypotheses to test the DCM, drawing on the established theoretical relationships.

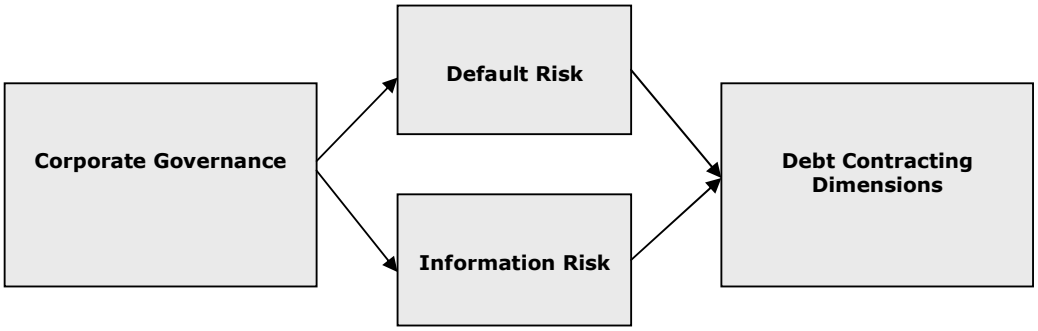
The remainder of the chapter is structured into six sections. Section 2.2 provides an overview of the DCM. Section 2.3 discusses the access and cost dimensions of debt contracting and their drivers. Section 2.4 explains the role of risk assessment in the DCM. Section 2.5 details the role of corporate governance in the DCM. Section 2.6 discusses "company size" effect. Section 2.7 provides the summary for the chapter.

2.2 DEBT CONTRACTING MODEL (DCM)

The DCM, shown in Figure 2.1, represents the effect of corporate governance on the access (quantities and types) and cost dimensions of debt contracting by influencing risk assessment (default and information risks). Previous research shows that default risk is a key driver of debt contracting outcomes, specifically access to debt and cost of debt (González, Lopez, and Saurina 2007; Vassalou and Xing 2004; Fisher 1959; Duffee 1999; Bougheas et

al. 2006). A reduction in perceived default risk leads to an increase in access to debt and a decrease in cost of debt (Ashbaugh-Skaife et al. 2006; Bhojraj and Sengupta 2003; Sengupta 1998; Anderson et al. 2004). More recently, the information risk literature finds information asymmetry also impacts on debt contracting, primarily cost of debt. Investors with lower levels of information tend to require a higher return on their investment (Francis et al. 2005; Lambert et al. 2009, 2007; Easley and O'Hara 2004). However, the information risk literature has not closely examined the impact of information risk on access to quantity and type of debt. The DCM posits that access to debt is influenced adversely by the variability in the level and precision of accounting information, and therefore companies are expected to access greater debt quantities and types in the presence of low information risk.

Figure 2.1: Debt Contracting Model



Corporate governance, a multi-dimensional concept that includes management oversight, financial transparency and equity control dimensions, is also expected to influence debt contracting via its impact on risk assessment. Higher levels of corporate governance mitigate agency conflicts between

managers and stakeholders which results in a reduction in perceived default risk and decreases information asymmetry which leads to lowering information risk (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006; Klein 2002; Easley and O'Hara 2004). As a result of higher levels of corporate governance, default and information risks are reduced thereby increasing access to quantity and type of debt and decreasing cost of debt.

Finally, the relationship between corporate governance, risk assessment, and debt contracting is likely to vary across company size. Although company size per se is not a driving factor in the debt contracting relationship, it does provide insight regarding the company's default and information risks (Minton and Schrand 1999; Byun 2007; Brewer 2007; Australian Securities Exchange (ASX) Corporate Governance Council 2006; Bougheas et al. 2006; Cantillo and Wright 2000). Smaller companies tend to have greater default risk and information asymmetry, and thus they are expected to experience greater debt contracting benefits due to implementing higher levels of corporate governance relative to larger companies (Elfakhani and Zaher 1998; Binks et al. 1992; Lean and Tucker 2001; Brewer 2007).

2.3 DEBT CONTRACTING DIMENSIONS

The DCM focuses on two dimensions of debt contracting which are access to debt (both quantity and type) and cost of debt. The access and cost dimensions represent two different, yet linked aspects of the debt procurement process (Angelini, Di Salvo, and Ferri 1998). Initially, the board of directors decides on the level of debt required to finance prospective projects. The firm

then enters a negotiating process with creditors in an attempt to obtain the required debt capital via the various debt types.[8] This process is typically followed by further negotiations that address the cost and other terms of debt. As a result of this sequence of events, access to debt is regarded as a first order effect of debt contracting, while cost of debt is considered as a second order effect. However, it is not uncommon for the two debt dimensions to overlap each other (Hyytinenn and Pajarinen 2007; Angelini et al. 1998).

Access to debt financing comprises two sub-components, which are the quantity and type of debt accessed. The first sub-component of access is the aggregate quantity of interest bearing debt that the company has secured relative to other financial liabilities (Abor 2007; Wen et al. 2002; Berger et al. 1997; Friend and Lang 1988; Funchal et al. 2008). The justification behind studying interest bearing debt in isolation to other liabilities (i.e. non-interest bearing liabilities) is mainly due to its sensitivity to default and information risks which are assessed and priced by lenders in the debt financial market. As a result, changes to risk assessment will impact directly on the access to interest bearing debt (González et al. 2007; Bougheas et al. 2006). Furthermore, the extant literature typically examines debt quantity as a component of capital structure analysis, usually in the form of leverage ratios such as total liabilities to total assets or total equity (Abor 2007; Wen et al. 2002; Berger et al. 1997; Friend and Lang 1988). This thesis is not interested in capital structure issues per se, but rather in the drivers of the level of interest-bearing debt, where debt is the chosen funding mechanism.

[8] The current study is concerned with companies that have interest bearing debt. However, future research could investigate the various characteristics of companies that have interest bearing debt versus companies that are unable to access interest bearing debt (see discussion in chapter five).

The second sub-component of access is the type of debt accessed which refers to the company's source and composition of interest-bearing debt (González et al. 2007; Bougheas et al. 2006; Cantillo and Wright 2000; Denis and Mihov 2003). Previous studies broadly categorise debt types into intermediated debt and non-intermediated debt (Cantillo and Wright 2000; Bougheas et al. 2006; Denis and Mihov 2003).

Intermediated debt is typically private debt that requires the presence of a third party to facilitate the debt contracting process between lenders and borrowers (Warner 1989). In the intermediated debt market the third party assumes, in part, the role of the market place through contracting and monitoring activities (Diamond 1984). Intermediated debt is often categorised as highly monitored debt due to the level of supervision that is carried out by lenders (Majumdar and Sen 2006; Rauh and Sufi 2008; Majumdar and Sen 2007). Lenders undertake the task of monitoring to assess the borrower's risk position which centres on default and information risk. The scrutiny of intermediated debt provides alternative governance that reduces the need for a formal corporate governance structure (James 1987; Leland and Pyle 1977; Bhattacharya and Chiesa 1995; Diamond 1984; Berger and Udell 2002; Fama 1985).

Intermediated debt often includes debt instruments that undergo intense supervision such as asset finance debt, bank debt and non-bank debt. Asset finance debt includes finance leases and hire purchases. Bank debt is composed of bank loans, facilities and overdrafts. Non-bank debt includes loans from non-bank financial institutions, directors and related entities. This thesis is primarily concerned with intermediated debt because it represents the

predominant types of debt used by Australian companies (Reserve Bank of Australia 2005a).

Non-intermediated debt is characterised by a lower monitoring intensity, which reflects the borrower's risk position (Diamond 1991; Cantillo and Wright 2000; Denis and Mihov 2003). This type of debt includes publicly traded debt instruments that are issued directly to lenders without intermediations such as corporate bonds. Additionally, non-intermediated debt also includes convertible and non-convertible commercial papers and notes that are privately issued. The low level of monitoring could result in increased information asymmetry between the debt contracting parties which raises the company's information risk and adversely impacts access and cost dimensions of debt contracting.

The final aspect in the debt contracting process is negotiating the cost of debt. Negotiations between lenders and borrowers on the cost of debt follow, but often overlap, negotiations on the quantity and type of debt (Hyytinenn and Pajarinen 2007). Previous literature defines cost of debt as the equilibrium required rate of return on traded debt such as corporate bonds (Chen 1978). However, due to the nature of the Australian debt market, this research defines cost of debt as the rate of return required by issuers of intermediated and non-intermediated debt (Reserve Bank of Australia 2005a; Damodaran 2002).

The diverging characteristics exhibited by the two debt types, intermediated and non-intermediated debts, influence their respective cost of debt (Bonfim, Dai, and Franco 2007; Berger and Udell 1995; Elsas and Krahnen 1998; Denis and Mihov 2003; Niskanen and Niskanen 2010). Prior research finds that the cost of intermediated debt is greater than non-

intermediated debt for two reasons. Firstly, companies that obtain intermediated debt financing have higher default risk relative to other companies (Denis and Mihov 2003; Diamond 1991). Secondly, the potential bargaining power by lenders of intermediated debt is higher due to their possession of borrowers' private information in comparison to other companies (Rajan 1992).

The DCM suggests that there are multiple and overlapping drivers of the quantity and type of debt accessed as well as cost of debt.[9] The primary drivers are risk assessment, which consists of default and information risks, and corporate governance practices. However, other drivers such as reputation, collateral level and company size (Abor 2007; Cantillo and Wright 2000; Wen et al. 2002; Funchal et al. 2008) also impact on debt contracting, and therefore should be controlled for by the study. The following section details the impact of risk assessment on the access and cost dimensions of debt contracting.

2.4 THE ROLE OF RISK ASSESSMENT

The default and information risk components of risk assessment play an integral role in determining access to and cost of debt (Bernoth and Wolff 2008; Sengupta 1998; Ashbaugh-Skaife et al. 2006). Previous literature has identified that risk assessment has two core aspects which include default risk and information risk (Ashbaugh-Skaife et al. 2006; Francis, LaFond, Olssona, and Schipper 2004). The model posits that lenders examine default risk to form an expectation about the firm's future cash flows. Furthermore, the model suggests that investors rely on the quality of accounting information to assess

[9] Refer to Appendix A for a detailed review of literature that focuses on the access and cost of debt contracting dimensions.

information risk. Lower levels of default and information risks lead to greater access to debt financing at a lower cost.

2.4.1 DEFAULT RISK

Debt contracting outcomes are heavily influenced by the borrower's level of default risk (Bougheas et al. 2006; Denis and Mihov 2003; Byun 2007; Klock et al. 2005; Anderson et al. 2004). A firm defaults when it is unable to service its debt obligations by failing to repay the principal and/or the interest on the principal. One of the significant determinants of the risk of default is the company's cash flow position (Scott 1981; Gentry, Newbold, and Whitford 1985; Aziz, Emanuel, and Lawson 1988; Trueman and Titman 1988). Prior research finds that a negative relationship exists between cash flows and default risk (Zeitun, Tian, and Keen 2007). Minton and Schrand (1999) show that cash flow fluctuations defer capital expenditures and delay debt repayments thereby increasing default risk and cost of debt.

Agency conflicts between managers and stakeholders increase the variance in expected cash flows thereby increasing default risk (Bhojraj and Sengupta 2003; Ashbaugh-Skaife et al. 2006).[10] Managers that are focused on advancing their self-interest are likely to engage in shirking, over-consumption of perquisites, empire building and unprofitable investments in projects that yield negative net present value (Sengupta 1998; Shleifer and Vishny 1997; Dechow and Sloan 1991; Jensen and Meckling 1976; Farinha 2003; Bhojraj and Sengupta 2003; Fan 2004). The adverse effects of self-seeking managerial behaviour result in reducing the company's expected cash flows and increasing

[10] Refer to Appendix B for the discussion on agency conflict and debt contracting.

default risk (Sengupta 1998; Ashbaugh-Skaife et al. 2006; Ashbaugh-Skaife and LaFond 2006; Bhojraj and Sengupta 2003; Jensen and Meckling 1976).

A company's ability to access quantities of debt is primarily influenced by default risk as well as other secondary factors, such as company size, profitability, and collateral (Abor 2007; Cantillo and Wright 2000; Wen et al. 2002; Funchal et al. 2008). Prospective debtholders base their lending decisions on the borrower's ability to repay their debts, and thus access to debt is highly influenced by default risk (Abor 2007; Cantillo and Wright 2000; Wen et al. 2002; Funchal et al. 2008). The DCM suggests that default risk is associated with the quantity of debt accessed. The following hypothesis states that default risk is negatively related to the quantity of debt accessed.

Hypothesis 1a: Default risk is negatively related to the quantity of debt accessed.

The type of debt is also influenced by default risk, along with other secondary factors such as reputation, profitability, collateral level and size (Vassalou and Xing 2004; Denis and Mihov 2003; González et al. 2007; Bougheas et al. 2006; Cantillo and Wright 2000). Grenadier (1996) finds that higher levels of default risk impact negatively on secured debt types such as finance lease contracts. Additionally, Smith (1987) suggests that firms with high default risk encounter difficulties in obtaining bank debt. Furthermore, prior studies find that companies that have low default risk and are larger, older and more successful, tend to access non-intermediated debt such as corporate bonds and notes (Diamond 1991; Cantillo and Wright 2000; Denis and Mihov

2003). Following the evidence presented by prior research, the DCM expects higher levels of default risk to increase the restrictions on accessing all types of debt. The following hypothesis formally states the relationship between default risk and the access to the different types of debt.

Hypothesis 1b: Default risk is negatively related to the access to the different types of debt.

The cost of debt is influenced by several key factors, most important of which is default risk (Bougheas et al. 2006; Denis and Mihov 2003; Byun 2007; Klock et al. 2005). Investors require a spread over the risk-free rate to compensate them for the possibility of default (Vassalou and Xing 2004; Fisher 1959; Duffee 1999). Bhojraj and Sengupta (2003) state that debt yields are primarily determined by the firm's ability to meet its debt obligations. Anderson et al. (2004) find that higher default risk results in an increase in cost of debt. Similar results are reported by Klock et al (2005) who show that higher debt usage increases default risk, thereby increasing cost of debt. It is therefore expected that the greater the firm's chance of not being able to service its debt, the higher the required return demanded by its investors. The following hypothesis states the association between default risk and cost of debt.

Hypothesis 1c: Default risk is positively related to cost of debt.

2.4.2 INFORMATION RISK

Recent theoretical studies expand beyond default risk to include information risk as a key risk element (Easley and O'Hara 2004; Lambert et al. 2007, 2009; Francis et al. 2005). Default risk is the possibility of not repaying the debt while information risk is defined as the variability in both the level and the precision of information across investors (Easley and O'Hara 2004; Lambert et al. 2007, 2009; Francis et al. 2005). Prior research finds that information asymmetry (Easley and O'Hara 2004) and poor accounting quality (Lambert et al. 2009) impact adversely on the pricing of debt contracts and increase the required return demanded by debtholders. However, there is a deficiency in accounting literature with respect to the relationship between information risk and other debt contracting dimensions such as access to the quantity and type of debt.

Previous literature on the relationship between information risk and access to quantity and type of debt has been scarce with the exception of capital structure literature which focuses on the influence of information asymmetry on the choice between debt and equity capital (Flannery 1986; Narayanan 1988). However, the current study is not concerned with capital structure because it assumes that a decision to select debt as a financing mechanism has been taken by the company. As a result the focus is on the nature and structure of debt contracting outcomes and their relationship to information risk.

The quality of accounting information has an impact on the process of forming expectations about future payoffs in debt contracting situations (Bharath, Sunder, and Sunder 2008). Accounting information (private or public) is used to form expectations about the borrowers' future cash flow and

their ability to service the debt in future periods (Bharath et al. 2008). Variability in the level and precision of accounting information increases the variance of expected cash flows which impacts negatively on the negotiated terms and conditions in debt contracts (Bharath et al. 2008).

In the presence of higher levels of information risk there are three possible debt contracting outcomes to consider. Firstly, companies that are inherently risky are unable to access interest bearing debt. These companies are restricted to different funding sources such as equity and/or non-interest bearing debt.[11] Secondly, companies with high information risk are restricted in the quantum and type of interest-bearing debt they can access. High information risk companies are less likely to access debt that is reliant on publicly available information but more likely to access debt where alternative information is available to lenders. Thirdly, information risk is priced into the debt contract whereby high information risk companies pay a higher cost of debt. Information risk, therefore, has the potential to impact the access (quantity and type) and cost dimensions of debt contracting.

At an aggregate level, the presence of information risk will depress a company's ability to access interest-bearing debt due to the fundamental sensitivity of debt providers to risk of any kind. Garcia-Teruel, Martinez-Solano and Sanchez-Ballesta (2008) find that companies with higher accruals quality (lower information risk) maintain lower levels of cash holdings because they have easier access to interest bearing debt to meet their cash needs. Furthermore, an imbalance of information is interpreted by disadvantaged debtholders in the debt contracting process as a signal of possible variability in

[11] Of the sampled companies, 49.9% do not have interest-bearing debt reported in their balance sheet. As discussed earlier, chapter five explores potential future research focused on the attributes of those companies that are unable to access interest bearing debt.

expected cash flows (Bharath et al. 2008). Consequently, debtholders factor the increase in information risk into their lending decisions and in aggregate the borrowers have less access to interest-bearing debt. The following hypothesis states the negative relationship between information risk and access to the quantity of debt.

Hypothesis 2a: Information risk is negatively related to the quantity of debt accessed.

Hypothesis 2a is a fairly weak hypothesis as it examines an aggregate access to interest bearing debt effect. Debt contracting is likely to be more complex in that information needs will vary across different debt types and different debt providers. The tolerance of each debt type to variations in the level of accounting information quality will differ based on the degree to which lending decisions are sensitive to the underlying information risk of the company.

In the Australian financial market, the four main types of interest bearing debt to consider are asset finance debt, bank debt, non-bank debt and non-intermediated debt.[12] Lenders of each debt type have different information needs and hence there will be a differential impact of information risk on the debt contracting outcomes. It is possible that the reduced reliance on accounting information and in particular on the quality of that information might make access to certain debt types, such as asset finance, more attractive to some companies. Research has shown that small companies and young

[12] The aggregate proportions of each debt type to total interest bearing debt for companies in the main sample are as follows: asset finance debt 3.4%, bank debt 33.9%, non-bank debt 19.3% and non-intermediated debt 43.3%.

companies with collateral (particularly plant and equipment) will tend to have proportionately more asset finance than large and older companies (Realdon 2006; Slotty 2008). The latter have greater access to alternative sources of debt such as non-intermediated debt and hence have a lower proportion of asset finance in place (Denis and Mihov 2003; Beck, Demirgüç-Kunt, and Maksimovic 2008; Beck and Demirguc-Kunt 2006).

Asset finance debt is secured with a charge over the assets pledged by the borrowers (Grenadier 1996). This loan collateral enhances the recovery value of the debt in the event of default and thus reduces the potential losses and risk of lending (Realdon 2006). Companies with high levels of information risk may still obtain access to asset finance because lenders can reclaim at least a portion of the funds owed by repossessing the secured asset (Beatty, Liao, and Weber 2008). Because of this collateral relationship, the information risk associated with the public financial information is less likely to be a factor in deciding whether or not to lend asset finance. It is therefore expected that companies with high information risk have greater access to asset finance debt than to other debt types.

In contrast, while bank and non-bank intermediated debts can also be secured over assets (Realdon 2006), there is much more reliance on the borrower's private and public accounting information. Prior evidence indicates that financial intermediaries (bank and non-bank financial institutions) have access to higher levels of information in relationship to debtholders which allows them to screen borrowers (Fama 1985; James 1987; Bharath, Sunder, and Sunder 2004). Additionally, financial intermediaries' ability to obtain and process both public and private information enables them to better predict and

monitor the borrowers' cash flows. This superior information access and processing in turn influences the flexibility with which financial intermediaries customise the terms and condition of the debt contract (Bharath et al. 2008). Furthermore, financial intermediaries are well positioned to renegotiate debt contracts to reflect and respond to changes in the borrower's information risk by altering the price and non-price terms in the debt contract. This ability to acquire information from sources other than financial public sources and the ability to build in terms and conditions to the loan (Diamond 1991) mitigates information risk. Nevertheless, it is expected that information risk has a residual negative impact on the access to bank and non-bank debt.

Finally, non-intermediated debt relies heavily on disclosed public information due to the lack of immediacy between the debt contacting parties (Arikawa and Miyajima 2005; Bharath et al. 2008). Lenders of non-intermediated debt view variability in the level and precision of public accounting information as having a negative impact on expected cash flows. Furthermore, due to the lack of information sources other than public information, lenders of non-intermediated debt react to high levels of information risk by limiting the amount of debt to be granted to borrowers. As a result, a negative relationship is expected between information risk and the access to non-intermediated debt.

The general expectation reflects a negative relationship between information risk and access to debt types. However, prior studies by Krishnan and Moyer (1994) and Realdon (2006) show that companies with high levels of risk tend to take on collateralised debt such as finance leases. Additionally, the effect of information risk is expected to be mitigated by the availability of other

sources of information which can be sourced by lenders such as banking and non-banking financial institutions. However, the overall access to bank and non-bank debt is still expected to be reduced in the presence of information risk. Furthermore, for debt types that rely heavily on public accounting information such as non-intermediated debt, information risk is expected to have a negative influence on access to this specific debt type. The current research posits that higher levels of information risk are positively related to asset finance debt and negatively related to bank debt, non-bank debt and non-intermediated debt. The following hypothesis formally states the relationship between information risk and the access to the different debt types.

Hypothesis 2b: Information risk is positively related to the access to asset finance debt and negatively related to the access to bank debt, non-bank debt and non-intermediated debt.

Recent studies propose that information risk is also priced in debt contracting via the required return demanded by debtholders (Easley and O'Hara 2004; Lambert et al. 2007, 2009; Francis et al. 2005). Easley and O'Hara (2004) examine the composition of information amongst different investors and conclude that availability of information impacts on cost of capital. They argue that higher levels of private information lead to some investors possessing more information than others. The uninformed investors recognise that they are at a disadvantage and demand a higher return to compensate them for bearing an information risk.

Francis et al. (2005) empirically test the relationship between information risk and cost of capital. They show that information risk, represented by poor accruals quality, is priced by the market and is reflected in higher costs of capital. Additionally, Francis et al. (2005) separate accruals quality into a discretionary component that is affected by managements' reporting and implementation decisions (Francis et al. 2004) and an innate component which reflects the company's business model and operating environment. Francis et al. (2005) conclude that both the innate and discretionary components of accruals quality influence cost of debt. However, the innate component is reported to have a greater effect on cost of debt.

Lambert et al. (2007) find that accounting information has a direct and indirect influence on cost of capital. The direct effect of the quality of accounting information is evident in the market participants' assessment of risk which is reflected in the distribution of future cash flows. However, the indirect effect of accounting information impacts the firm's real decisions which focus on the management's appropriation of cash flows.

Lambert et al. (2009) show that information risk, which is determined by the precision of information, affects cost of capital. They assume that in perfect competition, the average quality of information about the expected cash flows impacts on the required return demanded by investors. A major contribution of Lambert et al. (2009) is their focus on information precision rather than information asymmetry as the determinant of information risk. While US empirical research has shown that information risk impacts on cost of debt (Lambert et al. 2007, 2009; Francis et al. 2005), the Australian evidence, in a debt market characterised by private debt, is less clear.

Gray et al. (2009) posit that Australia provides a unique setting to study the impact of information risk on cost of capital due to two market factors. Firstly, corporate Australia typically relies more heavily on private debt which implies a generally lower information asymmetry. Secondly, Australia's continuous disclosure regime which requires listed companies to immediately disclose price-sensitive information to the public as soon as that information is known to the company also reduces information asymmetry. Gray et al. (2009) find that information risk increases the cost of debt (and equity) capital in Australia. However they find that it is the innate risk rather than the discretionary risk component of information risk that drives this result. Further evidence is needed to establish the exact nature of the risk factors that are priced in a private debt-dominated market such as Australia.

Following Francis et al. (2005) and Gray et al. (2009), this study expects the quality of accounting information to decrease information asymmetry and information risk, thereby lowering the required rate of return demanded by investors. The following hypothesis states that higher levels of information risk are positively related cost of debt.

Hypothesis 2c: Information risk is positively related to cost of debt.

Some researchers, such as Francis et al. (2005) and Gray et al. (2009), partition information risk into innate and discretionary components and found that cost of debt is related to innate risk. However, it is not theoretically clear, how the access to debt contracting will react to the two separate components. As a result, the aggregate information risk concept is decomposed and tested in

relationship to the debt contracting dimensions as part of the current study's sensitivity analysis. Following the findings of Francis et al. (2005) and Gray et al. (2009), the two components of information risk are expected to increase cost of debt. However, due to the fundamental importance of the company's innate information risk, it is expected to have a greater impact on cost of debt relative to the discretionary component (Francis et al. 2005).

2.5 ROLE OF CORPORATE GOVERNANCE

Higher levels of corporate governance are expected to impact access to and cost of debt via their influence on default and information risks (Chen and Jaggi 2000; Eng and Mak 2003).[13] It is useful at this juncture to consider what aspects of corporate governance are important in relationship to debt contracting. For the purpose of this study, corporate governance is defined as the methods employed by the owners via the board of directors to mitigate the debt agency conflict and to align the interests of managers and owners with those of the debtholders.

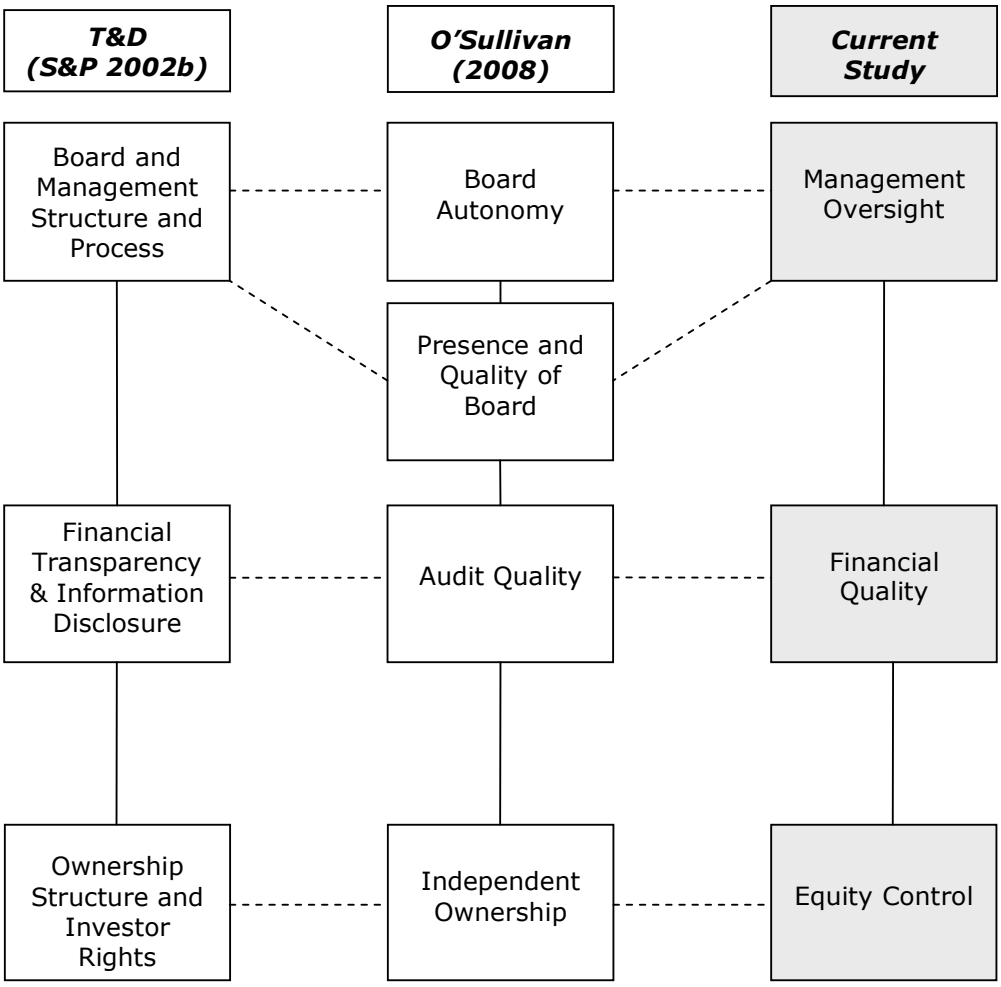
2.5.1 CORPORATE GOVERNANCE DIMENSIONS

Corporate governance is a multi-dimensional construct that consists of many systems and processes that elevate the monitoring and control functions in the firm. Prior literature presents several key dimensions to corporate governance such as ownership and board structures and financial disclosure

[13] Appendix C presents a discussion on corporate governance which includes the definition of corporate governance, developments in corporate governance practices and the ASX corporate governance principles and recommendations.

(O'Sullivan, Percy, and Stewart 2008; Ashbaugh-Skaife et al. 2006; Standard & Poor 2002b, 2002a). This thesis focuses on three corporate governance dimensions, which are management oversight, financial quality and equity control. Figure 2.2 summaries the corporate governance construct used in this study and relates it to other constructs.

Figure 2.2: Corporate Governance Constructs



Standard and Poor (S&P) developed a corporate governance transparency and disclosure (T&D) score in 2002 (Standard & Poor 2002b).[14] T&D is composed of board and management structure and process, financial transparency and information disclosure, ownership structure and investor rights (Standard & Poor 2002b). More recently, an Australian study by O'Sullivan et al. (2008) adopted a corporate governance construct that maps broadly to the T&D score. O'Sullivan et al. (2008) classify corporate governance attributes into board autonomy, presence and quality of the board, audit quality and independent ownership.

The corporate governance construct used in this thesis draws from the T&D score and the O'Sullivan et al. (2008) classification of corporate governance. The construct is represented by management oversight, financial quality and equity control dimensions.[15] Management oversight maps into the classification developed by O'Sullivan et al. (2008) which consists of board autonomy and presence and quality of the board dimensions. It also relates to the board and management structure and process dimension used by T&D. Financial quality is associated with audit quality from O'Sullivan et al. (2008) and financial transparency and information disclosure from T&D. Finally, equity control is linked to independent ownership used by O'Sullivan et al. (2008) and the ownership structure and investor rights dimension used in T&D. The following section relates the three corporate governance dimensions,

[14] In 2002, S&P also developed Corporate Governance Score (CGS) which assumes that corporate governance is represented by ownership structure and influence, financial stakeholder rights and relationships, financial transparency and board structure and processes (Standard & Poor 2002a). However, the current study utilises the constructs developed in T&D.

[15] Refer to the Appendix D for a detailed discussion of the elements in each corporate governance dimension.

management oversight, financial quality and equity control, to default and information risk elements of risk assessment.

2.5.2 CORPORATE GOVERNANCE DIMENSIONS AND RISK ASSESSMENT

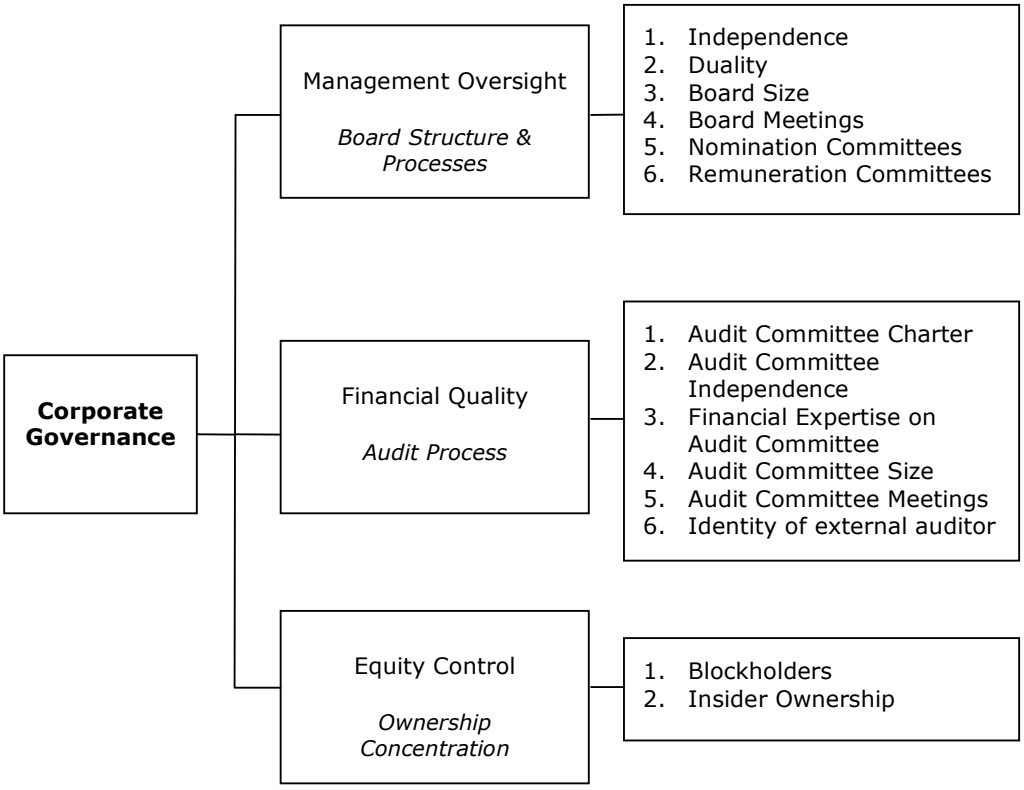
It is expected that the three corporate governance dimensions, management oversight, financial quality and equity control lower default risk and information risk. The DCM argues that higher levels of corporate governance mitigate agency conflicts, curb opportunistic managerial behaviour and reduce information asymmetry thus influencing default and information risks.

The management oversight dimension of corporate governance is the board's monitoring of management. This monitoring is facilitated by the structure and processes of the board of directors. The second principle of PGCG emphasises the importance of the board by recommending that companies have a majority of independent directors and separating the roles of board chair and CEO (Australian Securities Exchange (ASX) Corporate Governance Council 2003b).

Shareholders elect the board of directors and provide them with incentives to maximize shareholders' wealth or face the possibility of dismissal (McColgan 2001). Prior research finds that the board of directors is the most significant internal corporate governance mechanism available to the company (Kent and Stewart 2008; Fama and Jensen 1983b, 1983a; Davidson, Bouresli, and Singh 2006). The role of the board of directors is to monitor potential

agency conflicts and to reduce information asymmetry between stakeholders by establishing sub-committees that scrutinize the audit process and the hiring and remuneration procedures for senior company officers and board members (McColgan 2001).

Figure 2.3: Corporate Governance Dimensions and Elements



The structure and processes of the board, as depicted in Figure 2.3, are typically represented by the independence of the board, the separation of the role of chair and CEO, board size, frequency of board meetings, the existence of nomination and remuneration committees (Kent and Stewart 2008; Anderson et al. 2004; Dechow, Sloan, and Sweeney 1996; Beasley 1996; Daily and Dalton 1994; Yatim, Kent, and Clarkson 2006; Vafeas 1999b; Main and Johnston 1993; Conyon and Mallin 1997; Chiange 2005).

The financial quality dimension of corporate governance is determined by the quality of the audit process. The audit process centres primarily on the effectiveness of the audit committee as well as on the identity of the external auditor. The Best Practice Recommendations suggest that companies should have an audit committee; however the ASX listing rules mandate that an audit committee is required only for the Top 300 companies (Australian Securities Exchange 2007).

An audit committee provides specialized attention to issues such as the company's financial reporting, internal control systems, risk management, and appointment of external auditors (Australian Institute of Company Directors 2007). The main function of an audit committee is to review financial statements and the internal control system (Klein 1998; Azim and Shailer 2006). The committee facilitates communication between management, internal auditors, and external auditors and thus makes the internal audit process more reliable (Zain, Subramaniam, and Goodwin 2004). The audit committee protects shareholders' interests by ensuring the company's compliance with disclosure regulations (Davidson, Goodwin-Stewart, and Kent 2005; Kent and Stewart 2008). The existence and effectiveness of an audit committee plays a vital role in alleviating the agency problem through its role in reducing information asymmetry (Klein 1998). An audit committee's effectiveness is measured by its independence, accounting and finance expertise of its members, the number of times it meets per year and its size (Kalbers and Fogarty 1993; Yatim et al. 2006; Azim and Shailer 2006; Zain et al. 2004; Goodwin-Stewart and Kent 2006; Kent and Stewart 2008; Marsh and Powell 1989).

Another important aspect of financial quality centres on the external auditor. Auditors assess the truth and fairness of their clients' financial information, thereby performing a monitoring role which enhances the financial quality of the audited client (Chow 1982). Larger audit companies have greater expertise and resources which enable them to be more effective and detailed in investigating their clients' financial disclosures (Kent and Stewart 2008). Previous research has documented the positive impact of a high-quality audit on the cost of raising new capital (Copley and Douthett Jr 2002; Beatty 1989; Balvers, McDonald, and Miller 1988). Pittman and Fortin (2004) found that retaining a Big Six auditor reduces the company's cost of debt.

The financial quality dimension of corporate governance, as shown in Figure 2.3, is represented by the independence of the audit committee, the financial expertise of audit committee members, the audit committee meetings, the size of the audit committee, the existence of an audit committee charter and the identity of the external auditor (Francis and Krishnan 1999; Warrick 1999; McMullen and Raghunandan 1996; Dechow et al. 1996; DeZoort 1998; Cohen, Krishnamoorthy, and Wright 2002; Kalbers and Fogarty 1993; Kim, Liu, and Ghon Rhee 2003; Pittman and Fortin 2004).

The equity control dimension of corporate governance is a control mechanism which, unlike other governance practices, is focused on ownership concentration rather than on board dynamics. Research by Ang, Cole, and Wuh Lin (2000) investigate the relationship between the ownership structure and the agency costs for small businesses and show that management ownership reduces agency costs. Singh and Davidson (2003) replicate the study by Ang et al. (2000) on large public companies and arrive at similar results, which show

an inverse relationship between insider ownership and agency costs. Results reported by Davidson et al. (2006) support previous findings that relate agency costs to ownership structure. They show that companies with higher levels of CEO ownership have lower agency costs. Another form of governance control mechanism is via family and founder ownership structure. Family firms rely on the concentration of ownership to achieve the same objectives set out by mandated corporate governance practices. Research by Anderson and Reeb (2003) and Villalonga and Amit (2006) find that family-dominated firms outperform non-family firms. Anderson et al. (2003) show that family firms incur lower debt cost relative to non-family firms.

Australian evidence also indicates that agency costs are affected by ownership structure. Fleming, Heaney, and McCosker (2005) show that low levels of management and employee ownership result in high agency costs. Henry (2007) finds that greater institutional ownership reduces agency costs and that ownership structure can serve as a substitute to formal corporate governance structures. The current thesis focuses on two major ownership categories. These consist of blockholders and insider ownership as shown in Figure 2.3 (Shleifer and Vishny 1997; Holderness and Sheehan 1985; Denis 2001; Jensen 1993; McConnell and Servaes 1990; Morck, Shleifer, and Vishny 1988; Kole 1995). Blockholders that own more than five percent of the total shares of their companies have incentives to monitor management's actions (Shleifer and Vishny 1997). Additionally, executives and managers that own their company's stocks are interested in enhancing the company's performance (Jensen 1993).

Higher levels of corporate governance are expected to mitigate agency conflicts and reduce information asymmetry between managers and investors, thereby reducing default risk. Prior research finds that the company's cash flow position is a primary determinant of default risk (Scott 1981; Gentry et al. 1985; Aziz et al. 1988; Trueman and Titman 1988). Furthermore, agency conflicts increase the likelihood of variances in expected cash flows thereby impacting on the level of default risk (Bhojraj and Sengupta 2003; Ashbaugh-Skaife et al. 2006). Corporate governance increases the monitoring of management which reduces self-seeking managerial behaviour and agency conflicts between managers and stakeholders, thereby influencing variances in expected cash flows and default risk. The following hypothesis states that higher levels of corporate governance are negatively related to default risk.

Hypothesis 3a: Higher levels of corporate governance are negatively related to default risk.

Higher levels of corporate governance reduce information asymmetry, thereby influencing the level of information risk (Strydom, Navissi, Skully, and Veeraraghavan 2009). Prior studies identify information risk as the possibility that different investors receive varying information from the company (Easley and O'Hara 2004; Lambert et al. 2007, 2009; Francis et al. 2005). Francis et al. (2005) find that information risk and disclosure quality are priced by the market which indicates the relevance of financial reporting for investors. Prior research by Diamond and Verrecchia (1991) and Healy, Hutton and Palepu (1999) show that higher levels of reporting quality reduce information

asymmetry. More recently, Doyle, Ge and McVay (2007) established a link between weakness in internal controls and accruals quality. Furthermore, Ashbaugh-Skaife, Collins, Kinney and LaFond (2008) support the findings of Doyle et al. (2007) by concluding that internal control weaknesses reduce accruals quality. Past research also finds that corporate governance improves accruals quality and hence impacts on information risk (Strydom 2008; Strydom et al. 2009; Kent, Routledge, and Stewart 2010). The current study posits that higher levels of corporate governance increases the quality of accounting information and reduces the level of information asymmetry which decreases information risk. Consequently, the DCM proposes that higher levels of corporate governance are negatively related to information risk as stated in the following hypothesis.[16]

Hypothesis 3b: Higher levels of corporate governance are negatively related to information risk.

2.5.3 CORPORATE GOVERNANCE AND DEBT CONTRACTING

The combination of management oversight, financial quality and the equity control dimensions of corporate governance are expected to impact on the access and cost of debt via the reduction in default risk and information risk (H3a and H3b above). Higher levels of corporate governance mitigate agency conflicts amongst managers and other stakeholders which in turn lower default

[16] The sensitivity analysis partitions the aggregate information risk into innate and discretionary components which are then tested against corporate governance.

risk. Additionally, higher levels of corporate governance also decrease information asymmetry between the company and its investors which reduces information risks (Jensen and Meckling 1976; Beekes and Brown 2006). As a result of the impact corporate governance has on risk assessment, the DCM expects debtholders will access more quantities and types of debt at lower costs (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003).

Higher level of corporate governance increase management oversight by encouraging board independence, the separation of the role of chair and CEO, frequency of board meetings and the establishment of subcommittees such as nomination and remuneration committees (Kent and Stewart 2008; Anderson et al. 2004; Dechow et al. 1996; Beasley 1996; Daily and Dalton 1994; Yatim et al. 2006; Vafeas 1999b; Main and Johnston 1993; Conyon and Mallin 1997; Chiange 2005). The board structures and processes aspect of corporate governance allows for the supervision of actions and decisions taken by management, which could lower future cash flows and increase default risk. Additionally, corporate governance influences the financial review process by ensuring the establishment of an active and independent audit committee (Francis and Krishnan 1999; Warrick 1999; Dechow et al. 1996; Cohen et al. 2002; Kalbers and Fogarty 1993; Pittman and Fortin 2004). Finally, equity shareholder concentration allows the owners to take on a more proactive approach in the company's decision making processes which assists in mitigating the agency conflict between the managers and owners (Ang et al. 2000; Singh and Davidson 2003). Higher levels of corporate governance curb managerial tendencies towards self-serving actions which increase default risk

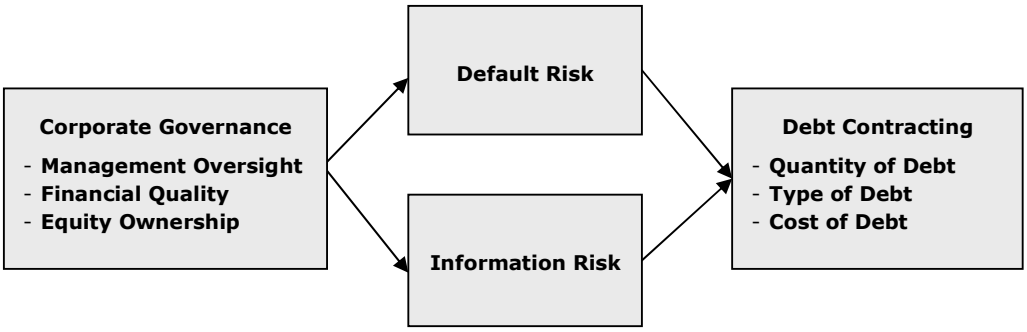
and lower access to debt (quantity and type) and increase cost of debt (Sengupta 1998; Ashbaugh-Skaife et al. 2006; Bougheas et al. 2006; Funchal et al. 2008).

The quality of accounting information is expected to impact significantly on information risk in several ways. Firstly, accounting information allows investors to form expectations about the firm's expected cash flows (Lambert et al. 2009). Companies with higher levels of transparency tend to release value-relevant information, which is used in assessing the company's cash flow position (Sengupta 1998). Secondly, accounting information facilitates the coordination between investors and managers with respect to capital investments (Lambert et al. 2007; Francis et al. 2004). Aligning the expectations of investors and managers contributes to the reduction of information risk. Thirdly, accounting information plays an integral role in reducing information asymmetry amongst the company's stakeholders (Ashbaugh-Skaife et al. 2006; Francis et al. 2005). Greater transparency leads to better monitoring of management, thereby mitigating the moral hazard problem which reduces information risk (Easley and O'Hara 2004; Lambert et al. 2007).

The firm's level of corporate governance influences the quality of accounting information which affects information risk (Bushman and Smith 2003; Bushmana and Smith 2001). Klein (2002) and Beasley (1996) find that corporate governance reduces earnings management and fraudulent reporting. As a result, higher levels of corporate governance lead to increased financial transparency and disclosure. The empirical results of Beekes and Brown (2006) show that corporate governance increases informative disclosure. Kent et al. (2010) find that higher levels of corporate governance are negatively related to

the innate and discretionary components of accruals quality. Ashbaugh-Skaife et al. (2006) show that accruals quality, determined by the divergence between accruals and cash flows, is a proxy for financial transparency, which impacts the company's credit ratings. An increase in financial transparency results in higher quality reported information, which impacts on the company's expected value of cash flows (Ashbaugh-Skaife et al. 2006). The DCM, depicted in Figure 2.4, posits that higher levels of corporate governance reduce default and information risks, thereby increasing access to quantity and type of debt and lowering cost of debt.

Figure 2.4: Dimensions in the Debt Contracting Model



The association between corporate governance and the quantity of debt accessed is evident in a number of prior studies. One recent study is Funchal et al. (2008) which find that higher levels of corporate governance increase the access to debt and lower cost of debt for Brazilian firms. Abor (2007) examines the relationship between corporate governance and capital structure decisions for Ghanaian companies and finds a positive relationship between debt levels and corporate governance practices. Wen et al. (2002) explore the impact of corporate governance on the company's capital structure in China and

find a negative relationship between leverage ratio and board composition and CEO tenure. Berger et al. (1997) examine the association between managerial entrenchment and capital structure decisions in the United States and show a negative relationship between capital structure and managerial entrenchment. Friend and Lang (1988) investigate the relationship between managerial ownership and the company's debt levels in the United States and find a negative relationship between debt levels and managerial ownership.

Nevertheless, the relationship between higher levels of corporate governance and the quantity of debt accessed is theorised differently in the DCM relative to past studies. A common factor between prior studies is their assumption that risk alongside corporate governance drive debt contracting. However, unlike prior literature which discounts the intervening effect of risk, the DCM argues, based on prior theory, that corporate governance through its influence on default risk and information risk, impacts the quantity of debt accessed. Higher levels of corporate governance mitigate the agency conflict between managers and debtholders which lowers the risk of default (Ashbaugh-Skaife et al. 2006; Bhojraj and Sengupta 2003). Additionally, companies that adopt higher levels of corporate governance tend to have greater financial transparency and lower information asymmetry relative to other companies (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006). This prompts lenders to grant companies greater access to quantities of debt (Abor 2007; Funchal et al. 2008). The relationship between higher levels of corporate governance and the access to quantities of debt is expressed in the following hypothesis.

Hypothesis 4a: Higher levels of corporate governance impact positively on the quantity of debt accessed via the reduction of default risk and information risk.

Access to debt types is influenced by several firm specific factors, one of which is corporate governance. Prior studies find that default risk, age, collateral level, size, leverage level and profitability are the main drivers of access to type of debt (González et al. 2007; Bougheas et al. 2006; Denis and Mihov 2003; Cantillo and Wright 2000). Bougheas et al. (2006) examine the determinants of debt sources for British companies and show that small, young, risky, and indebted firms access bank financing. Denis and Mihov (2003) examine the determinants of public and private financing of United States companies and show that companies with the highest credit quality access public debt, firms with medium credit quality access bank debt, and firms with the lowest credit quality access non-bank debt. In addition, firms that access public debt are larger, more profitable, more highly leveraged, have higher proportions of fixed assets relative to total assets, and fewer growth opportunities than firms that rely on bank debt. Cantillo and Wright (2000) explore the relationship between financing sources and various company characteristics for United States companies. The results show that large companies with high collateral and high cash flows borrow from public lenders. Although the links between access to debt types and firm specific factors are well documented in the literature, only few studies address the association between corporate governance and access to debt types.

The DCM suggests that higher levels of corporate governance impact on default risk and information risk and thereby influence the type of debt accessed as shown in Figure 2.4. It could be argued that corporate governance has a differential impact on the four types of debt depending on the degree of risk mitigation that governance has on each debt type. At the heart of this argument is the expected impact of corporate governance on non-intermediated debt. A study by Uppal (2007) finds that extensive disclosure requirements and standards of liability (better governance) are associated with larger bond markets (greater access to non-intermediated debt). On the other end of the spectrum, access to asset finance debt is not expected to increase in the presence of higher levels of corporate governance. Lenders of asset finance debt are assured that borrowed capital is secured with assets pledged by borrowers (Grenadier 1996). As a result of this collateralised debt agreement, the monitoring and informational advantages associated with implementing higher levels of corporate governance are less likely to be a factor in asset finance lending decisions. However, a study by Robicheaux, Fu and Ligon (2008) find that higher levels of corporate governance increase access to lease financing. Based on prior findings, the DCM discounts the differential corporate governance argument and instead suggests that higher levels of corporate governance, through the reduction of risk, have a positive influence on all debt types.

Higher levels of corporate governance are expected to decrease default risk and information risk, thereby increasing access to all debt types. Corporate governance reduces managerial opportunistic behaviour which reduces default risk (Byun 2007; Ashbaugh-Skaife et al. 2006). A reduction in default risk

permits borrowers to access a wider variety of debt types (Diamond 1991; Cantillo and Wright 2000; Denis and Mihov 2003; Hoshi, Kashyap, and Scharfstein 1993). Additionally, higher levels of corporate governance assist in the discharge of quality financial information, thereby bridging the information gap between stakeholders (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006). As a result, the company achieves greater transparency, which contributes to reducing information risk by enabling creditors to assess value-relevant information (Bernoth and Wolff 2008). The relationship between higher levels of corporate governance and the access to debt types is expressed in the following hypothesis.

Hypothesis 4b: Higher levels of corporate governance impact positively on the access to the different types of debt via the reduction of default risk and information risk.

There is a body of research that investigates the association between corporate governance and cost of debt. Ashbaugh-Skaife et al. (2006) study the impact of corporate governance on credit ratings for United States companies and find that higher credit ratings, which are proxies for cost of debt, are positively related to financial transparency, board independence, board stock ownership, and board expertise. Additionally, higher credit ratings are negatively associated with blockholders that owned at least 5 percent of total shares and CEO power on the board. Klock et al. (2005) investigate the relationship between a corporate governance index and the cost of debt

financing for United States companies and find that a negative relationship exists between the corporate governance index and cost of debt financing. Mansi et al. (2004a) study the relationship between auditor characteristics and cost of debt for United States companies and show that auditor quality and tenure are negatively related to cost of debt.

Other leading studies also focus on the influence of corporate governance on cost of debt. Pittman and Fortin (2004) examine the association between auditor choice and cost of debt for initial public offerings for United States companies and show a negative relationship between hiring a Big Six auditor and cost of debt for young companies. Anderson et al. (2004) investigate the relationship between board structure and the cost of debt for United States companies and finds that independent boards, larger boards, and fully independent audit committees are associated with a lower cost of debt. Bhojraj and Sengupta (2003) examine the association between corporate governance and bond ratings and yields for United States companies and show that large institutional ownership is associated with higher ratings and lower yields. In addition, as the concentration of institutional investors increases, the bond ratings decrease and the bond yields increase. The presence of independent directors is positively related to the higher rating and lower yields. Sengupta (1998) explores the link between the overall quality of disclosure and the companies' credit ratings for United States companies and finds a negative relationship between the two measures of cost of debt and the quality of disclosure.

The current study theorises that higher levels of corporate governance impact on cost of debt. In the DCM, corporate governance operates through

risk assessment thereby influencing cost of debt. In this sense, the approach outlined in the DCM is distinguished from past literature which overlooks testing the theoretical links between corporate governance and risk assessment and suffices with using risk measures as control variables (Bhojraj and Sengupta 2003; Ashbaugh-Skaife et al. 2006; Klock et al. 2005; Pittman and Fortin 2004). In the DCM, the reduction of agency conflicts and information asymmetry brought about by higher levels of corporate governance is explicitly stated and examined.

The DCM proposes that companies that implement higher levels of corporate governance are inclined to mitigate agency conflicts amongst stakeholders (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006). As a result, creditors obtain decision-relevant information about the company's expected cash flows which contributes to the reduction of default risks thereby lowering the cost of debt (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006). Additionally, the effect of higher levels of corporate governance on the quality, transparency and disclosure of accounting information reduce information risk, thereby lowering the required rate of return demanded by debtholders. The following hypothesis states the proposed relationships between higher levels of corporate governance and cost of debt.

Hypothesis 4c: Higher levels of corporate governance impact negatively on cost of debt via the reduction of default risk and information risk.

2.6 COMPANY SIZE EFFECT

One final consideration is the impact of company size on the DCM. Company size is related to a number of firm systems and processes that impact on default and information risk that are present in the company. From the perspective of default risk, size is important for two reasons. The first reason is that smaller firms have less bargaining power with creditors to restructure debt or internal resources to deter financial threats. The second reason is that resource allocation differs between small and large firms (Carter and Van Auken 2006; Headd 2003). Small firms have fewer resources to draw from during periods of financial difficulty. This impacts adversely on their ability to cope under the threat of default. As a result, smaller companies are more likely to encounter debt repayment problems relative to larger companies. Additionally, smaller companies have less chance of surviving a state of default in comparison to larger companies. Consequently, smaller firms are perceived to have higher default risk relative to their large counterparts.

Small companies generally operate within a poor information environment which diminishes financial transparency and increases information asymmetry amongst stakeholders (Elfakhani and Zaher 1998; Binks et al. 1992; Lean and Tucker 2001; Brewer 2007). As a result of the high cost of acquiring company information, financial analysts are less apt to follow and report on those companies (Easterday et al. 2008; Chang et al. 2006; Brewer 2007). The analysts' neglect of small firms further perpetuates the information asymmetry problem, thereby increasing chances of misevaluation (Chang et al. 2006). As a result, a stringent risk assessment, assisted by the implementation of higher levels of corporate governance, is imperative for small companies. The

informational benefits of risk assessment and corporate governance directly impact access and cost dimensions of debt contracting, thereby increasing access to debt and lowering cost of debt.

Small companies also support dissimilar corporate governance practices to those normally adopted by large companies (Australian Institute of Company Directors 2003; Australian Securities Exchange 2004; Da Silva Rosa, Izan, and Lin 2004; Laing and Weir 1999). The Horwath Corporate Governance Report (2004) indicates that small companies implement PGCG less frequently than large companies. Similarly, the ASX Corporate Governance Council (2006) state that small companies adopted the recommendations at a lower rate compared to larger companies. Furthermore, the variation in corporate governance practices amongst different sized companies is evident in the PGCG which mandate that an audit committee is required only for the Top 300 companies (Australian Securities Exchange 2007).

The dissimilarity in corporate governance implementation by different sized companies could be due to the costs associated with putting corporate governance into practice. Small companies claim they incur significant administrative costs if they follow the ASX's corporate governance recommendations (Clarke 2006; Murray 2005; Australian Government 1996). Furthermore, small companies contend that they are disadvantaged by PGCG (Nicholas 2003; Hayes 2003) but that they are compelled to adopt these recommendations because non-adoption sends a negative signal to the market (Milligan and Brearley 2003; Costa 2003; Chong 2002). It is an empirical question whether the asserted costs of implementing the recommended

governance practices are warranted in terms of the contracting cost-benefit payoff for firms and, in particular, for small firms.

The DCM proposes that company size is a key factor that warrants assessment and analysis. Small companies possess greater vulnerability to default risk and information asymmetry relative to larger firms, which impacts disadvantageously on their access to and cost of debt dimensions. Additionally, due to the disproportionate cost of adopting corporate governance, small companies suffer from uneven implementation of governance practices in comparison to larger companies. As a result, the study proposes that small companies are positioned to experience greater debt contracting benefits when higher levels of corporate governance are applied. Those benefits stem from the managerial control and financial quality dimensions of corporate governance which contribute to the reduction of default and information risk. Furthermore, a reduction in the level of risk increases access to debt and decreases cost of debt. The following hypotheses formally state the relationship between company size and the debt contracting dimensions in the presence of higher levels of corporate governance.

Hypothesis 5a: Small companies that implement higher levels of corporate governance access more debt.

Hypothesis 5b: Small companies that implement higher levels of corporate governance access more of each type of debt.

Hypothesis 5c: Small companies that implement higher levels of corporate governance pay a lower cost of debt.

2.7 SUMMARY

This chapter develops the DCM which focuses on the relationship between higher levels of corporate governance and the debt contracting outcomes of access and cost of debt via the lowering of default risk and information risk. The model holds that higher levels of corporate governance reduce agency conflicts and lower information asymmetry amongst stakeholders. As a result, the company is assessed by investors as having lower default and information risks which leads to greater access to debt and lower cost of debt. The model further posits that smaller companies, which suffer from high levels of default and information risks, experience greater benefits from corporate governance and thus can access greater quantities and types of debt and negotiate lower costs of debt.

Table 2.1: Summary of Hypotheses

Hypotheses
H1a: Default risk is negatively related to the quantity of debt accessed.
H1b: Default risk is negatively related to the access to: Asset financed debt. Bank debt. Non-bank debt. Non-intermediated debt.
H1c: Default risk is positively related to cost of debt.
H2a: Information risk is negatively related to the quantity of debt accessed.
H2b: Information risk is: Positively related to the access to asset finance debt. Negatively related to the access to bank debt. Negatively related to the access to non-bank debt. Negatively related to the access to non-intermediated debt.
H2c: Information risk is positively related to cost of debt.
H3a: Higher levels of corporate governance are negatively related to default risk.
H3b: Higher levels of corporate governance are negatively related to information risk.

Table 2.1: Summary of Hypotheses (Continued)

Hypotheses
H4a: Higher levels of corporate governance impact positively on the quantity of debt accessed via the reduction of default and information risk.
H4b: Higher levels of corporate governance impact positively on the access to the following debt types via the reduction of default and information risk: Asset financed debt. Bank debt. Non-bank debt. Non-intermediated debt.
H4c: Higher levels of corporate governance impact negatively on cost of debt via the reduction of default and information risk.
H5a: Small companies that implement higher levels of corporate governance access more interest bearing debt.
H5b: Small companies that implement higher levels of corporate governance access more of the following debt types: Asset financed debt. Bank debt. Non-bank debt. Non-intermediated debt.
H5c: Small companies that implement higher levels of corporate governance pay a lower a cost of debt.

The chapter concludes by formulating five testable hypotheses as summarised in Table 2.1. The first hypothesis posits a negative association between default risk and the access to quantities and types of debt. Additionally, the hypothesis predicts a positive relationship between default risk and cost of debt. The second hypothesis states that information risk is negatively related to the quantity of debt accessed. It also states that information risk increases access to asset finance debt, reduces access to bank debt, non-bank debt and non-intermediated debt. Furthermore, the second hypothesis posits that information risk is positively related to cost of debt. The third hypothesis proposes that higher levels of corporate governance are negatively related to default and information risks. The fourth hypothesis states that higher levels of corporate governance are positively related to access to quantities and types of debt and negatively related to cost of debt. The fifth

hypothesis focuses on the relationship between company size and the debt contracting outcomes in the presence of higher levels of corporate governance. The hypothesis states that smaller companies access higher quantities of debt, access more types of debt and pay lower cost of debt in the presence of higher levels of corporate governance. The following chapter presents the empirical methods used to formally test the hypotheses developed in this chapter.

CHAPTER THREE: RESEARCH DESIGN

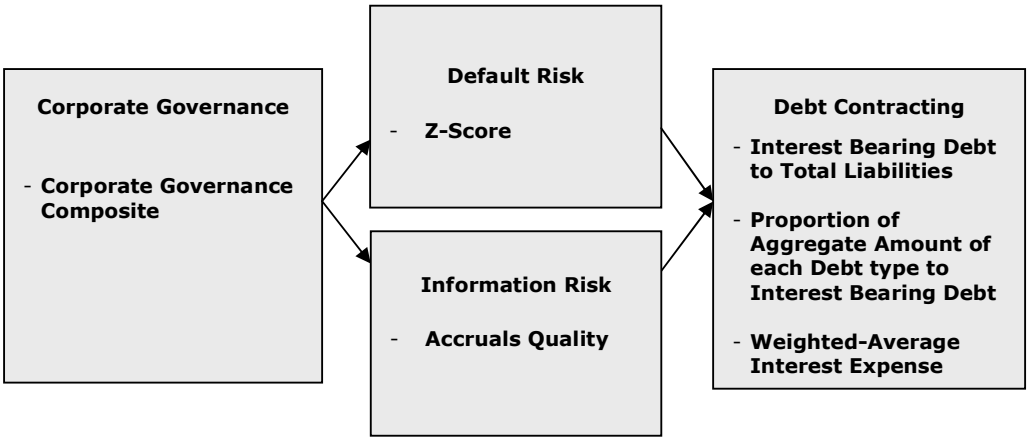
3.1 INTRODUCTION

This chapter describes the research design which includes the sample, variables and the empirical methods employed to test the DCM and debt contracting hypotheses developed in the previous chapter. The remainder of the chapter is divided into five sections. Section 3.2 outlines the research design. Section 3.3 discusses the sample and data collection procedures. Section 3.4 provides operational definitions for the constructs which are developed in chapter two. Section 3.5 describes the analysis procedure. Finally, section 3.6 presents the summary for the chapter.

3.2 OVERVIEW OF RESEARCH DESIGN

The research empirically tests the theoretical DCM developed in chapter two (refer to Figure 2.4). The sample used in the study consists of 1,239 Australian, non-financial, listed companies with a 2007 June 30 balance date. The study provides the measurements for corporate governance practices, risk assessment, access to quantity and type of debt, and cost of debt. Key variables used to proxy for the DCM and test the relationship between corporate governance and debt contracting, are shown in Figure 3.1.

Figure 3.1: Measures of Debt Contracting Model



The research empirically estimates the parameters to test the DCM by estimating OLS and 2SLS regressions. The dependent variables are access to debt (quantity and type) and cost of debt. Access to quantity of debt is measured as the ratio of interest bearing debt to total liabilities. Access to each type of debt is measured as the proportion of the aggregate amount of asset finance debt, bank debt, non-bank debt and non-intermediated debt divided by total interest bearing debt. Cost of debt is measured as the weighted-average interest expense. The independent variables in the regression are corporate governance, default risk and information risk. Corporate governance is represented by a composite score which includes 14 individual corporate governance variables (Defond et al. 2005). Default risk is measured by a Z-score which is estimated by using discriminate analysis of failed and non-failed companies (Altman 1968) while information risk is measured as accruals quality (Dechow and Dichev 2002; Francis et al. 2005). The model also controls for the company's industry, reputation, collateral, and size.

3.3 SAMPLE AND DATA COLLECTION PROCEDURES

The sample consists of public companies listed on the Australian Stock Exchange with a 2007 June 30 balance date. The reason for sufficing with only one year's worth of data is due to the assumption that corporate governance is sticky and that it does not change very quickly over time (Black, Jang, and Kim 2006; Patro 2005). The sample is chosen from the year 2007 because it represents the last available year prior to the global financial crisis of 2008 – 2009. Companies with a June 30 balance date are included to ensure comparability in the information across a consistent reporting period similar to prior studies (Bartholomeusz and Tanewski 2006; Whelan 2004; Kent et al. 2010).

The original sample frame includes 1,824 listed companies. However, due to the focus on debt contracting, 257 companies from the banking, insurance and financial sectors are excluded from the sample. Furthermore, the study restricts the sample to companies with a June 30 balance date, which excludes a further 328 companies and results in a balance of 1,239 companies. The data is collected from annual reports and database information from AspectHuntley's FinAnalysis and DatAnalysis and Thomson Reuters Tick History (TRTH). A summary of the sample details are listed in Table 3.1.

Table 3.1: Summary of Sample Details

Sample Details	Companies
Original sample frame	1,824
Companies from the financial sector	257
Companies with a balance date other than June 30	328
Final sample frame	**1,239**

3.4 OPERATIONALISATION OF CONSTRUCTS

This section discusses the measurements that are used to represent the concepts developed in chapter two. The dependent variables include proxies for access to debt (quantity and type) and cost of debt. The independent variables represent corporate governance, default risk and information risk. Finally, control variables measure the industry, reputation, collateral, and size concepts. The following sections provide a detailed overview of the calculations for the different variables used in the study.

3.4.1 ACCESS TO DEBT

Access to debt has two sub-components which are the quantity and type of debt accessed by the company. The variable, QUANT, is the proxy for the access to the quantity of debt which represents the quantity of interest bearing debt that the company obtains to finance its operations (Friend and Lang 1988; Abor 2007; Wen et al. 2002; Berger et al. 1997; Funchal et al. 2008). One of the measurements used by Funchal et al. (2008) to proxy for access to debt is the log of total debt. However, since larger firms tend to have more debt

relative to smaller firms (Demirguc-Kunt and Maksimovic 1999), the log of total debt is likely to be biased by the size of the company. Therefore a more appropriate measure is to scale quantity of interest bearing debt by total liabilities in order to capture the proportion of interest bearing debt accessed relative to other financial liabilities thereby defusing the impact of size (Bougheas et al. 2006; González et al. 2007). In accordance with prior literature, the current study measures access to quantity of debt, QUANT, as total interest bearing debt divided by total liabilities (Bougheas et al. 2006; González et al. 2007). The following is the calculation for QUANT.[17]

$$QUANT_i = \frac{IDEBT_i}{LIAB_i} \tag{3.1}$$

Where:

$QUANT_i$ = Total interest bearing debt divided by total liabilities for firm i.

$IDEBT_i$ = Total interest bearing debt for firm i.

$LIAB_i$ = Total liabilities for firm i.

The second sub-component of access to debt focuses on the company's ability to contract four types of debt: asset finance debt, bank debt, non-bank debt and non-intermediated debt. Similar to past studies, the four debt type variables are measured as the proportion of the aggregate amount of each debt type to the total interest bearing debt (González et al. 2007; Bougheas et al. 2006; Denis and Mihov 2003; Cantillo and Wright 2000). The first debt type

[17] Refer to Appendix K for calculations of alternate access to debt measures. The appendix also includes regression results using the alternate measures.

variable, ASFIN, is asset finance debt divided by total interest bearing debt. Asset finance refers to interest bearing debt that is secured by the company's assets such as hire purchases and finance leases. The second debt type variable, BANK, is bank debt divided by total interest bearing debt where bank debt comprises bank loans, facilities, and overdrafts. The third debt type measure, NONBANK, is non-bank debt divided by total interest bearing debt where non-bank debt refers to loans from non-bank financial institutions, the company's directors and loans from other related and unrelated parties. The final debt type variable, NONINT, is the non-intermediated debt divided by total interest bearing debt where non-intermediated debt consists of convertible and non-convertible commercial papers, notes, and bonds. The following measures are used to proxy for the company's access to the four types of debt.

$$ASFIN_i = \frac{AFDEBT_i}{IDEBT_i} \tag{3.2a}$$

Where:

$ASFIN_i$ = Asset finance debt divided by total interest bearing debt for firm i.

$AFDEBT_i$ = Asset finance debt for firm i which includes hire purchase and finance lease liabilities.

$IDEBT_i$ = Total interest bearing debt for firm i.

$$BANK_i = \frac{BKDEBT_i}{IDEBT_i} \tag{3.2b}$$

Where:

$BANK_i$ = Bank debt divided by total interest bearing debt for firm i.

$BKDEBT_i$ = Bank debt for firm i which includes bank loans, facilities, and overdraft.

$IDEBT_i$ = Total interest bearing debt for firm i.

$$NONBANK_i = \frac{NBKDEBT_i}{IDEBT_i} \quad (3.2c)$$

Where:

$NONBANK_i$ = = Non-bank debt divided by total interest bearing debt for firm i.

$NBKDEBT_i$ = Non-bank debt for firm i which includes loans made by non-bank financial institutions.

$IDEBT_i$ = Total interest bearing debt for firm i.

$$NONINT_i = \frac{NINDEBT_i}{IDEBT_i} \quad (3.2d)$$

Where:

$NONBANK_i$ = Non-intermediated debt divided by total interest bearing debt for firm i.

$NINDEBT_i$ = Non-intermediated debt for firm i which includes commercial papers, notes, and bond.

$IDEBT_i$ = Total interest bearing debt for firm i.

3.4.2 COST OF DEBT

The second dimension of debt contracting is the cost of debt negotiated by the company. Prior studies, which focus primarily on traded debt issued by US companies, use yield spreads to proxy for cost of debt (Nikolaev and Van Lent 2005; Bhojraj and Sengupta 2003; Boubakri and Ghouma 2006; Klock et

al. 2005; Anderson et al. 2004; Shaw 2007; Sengupta 1998; Schauten and Blom 2006). However, unlike the US, Australian companies are less reliant on traded debt and often resort to financial intermediaries to access interest bearing debt (Reserve Bank of Australia 2005a). As a result, this study utilises the interest rate information disclosed in the notes to the financial statements to calculate the cost of debt. The following is the cost of debt measure, COST, which is the calculated weighted average interest rate for each debt type.

$$COST_i = \sum_{i=1}^{N} \left(r_i \times \frac{TYPE_{j,i}}{IDEBT_i} \right) \tag{3.3}$$

Where N is the number of types of debt and r_i is the interest rate for each debt type reported in the notes to the annual reports of firm i.[18] The definitions for the other variables are as follows:

$COST_i$ = Cost of debt for firm i.

$TYPE_{j,i}$ = Amount of interest bearing debt in debt type j for firm i.

$IDEBT_i$ = Total interest bearing debt for firm i.

3.4.3 CORPORATE GOVERNANCE

Corporate governance is a multi-faceted concept that is captured by fourteen individual variables.[19] Consistent with previous literature, the study calculates a corporate governance composite by summarising the fourteen

[18] Note that not all companies have access to all debt types. Some companies have access to a single debt type and therefore cost of debt for those companies is the interest expense for that particular debt type.

[19] Refer to Appendix E definitions of individual corporate governance variables.

individual corporate governance variables into a single variable (Gompers, Ishii, and Metrick 2003; Defond et al. 2005).[20] The individual corporate governance variables are listed in Table 3.2.

Table 3.2: Summary of the Fourteen Individual Corporate Governance Variables

Variable Name	Variable Description
INDP	Proportion of non-executive independent directors on the board.
DUAL	One if the CEO is separate from chair of the board, and zero otherwise.
BDSIZE	Number of directors on the board.
BDMEET	Number of board meetings.
NOM	One if the company has a nomination committee, and zero otherwise.
REM	One if the company has a remuneration committee, and zero otherwise.
AUDCHRT	One if the company has an audit committee charter, and zero otherwise.
AUDIND	Proportion of non-executive independent members on the audit committee.
AUDEXP	Proportion of audit committee members with accounting and finance qualifications.
AUDSIZE	Number of directors on audit committee.
AUDMEET	Number of audit committee meetings.
AUDITOR	One if the auditor is a Big Four, and zero otherwise.
BLOCK	Percentage of shares owned by investors owning five percent or more of the company's shares.
INSIDER	Percentage of company's shares owned by insiders.

The calculation of the corporate governance composite requires converting non-binary variables to binary scores. Corporate governance variables, such as DUAL, NOM, REM, AUDCHRT, and AUDITOR are already binary in nature. However, the remainder of the fourteen variables are non-binary, therefore they are recoded to be dichotomous by allocating a value of one if the variable is above the sample median and zero otherwise. The fourteen dichotomous variables are added to produce a governance composite, GOV, which has a maximum value of fourteen and a minimum value of zero (Defond et al. 2005). A value of fourteen indicates strong corporate governance

[20] Previous studies calculate an aggregate of corporate governance because individual governance measures represent similar aspects of corporate governance, which imply a high correlation between those measures (Gompers et al. 2003; Defond et al. 2005).

and a value of zero indicates weak corporate governance. The following variable represents the corporate governance composite.

$$GOV_i = \sum_{j=1}^{14} CORPGOV_{j,i} \quad (3.4)$$

Where:

GOV_i = The level of corporate governance for firm i.

$CORPGOV_{j,i}$ = The jth individual corporate governance variable for firm i.

3.4.4 RISK ASSESSMENT

There are two aspects of risk assessment: default risk and information risk. Default risk is represented by Z-score, while the proxy used for information risk is the accruals quality. The variable measurements for the two risk concepts are presented in the following sections.

3.4.4.1 DEFAULT RISK

Consistent with extensive prior literature, the current study estimates a default risk score by using multivariate linear discriminate (MLD) analysis to estimate an Australian Z-score model (Altman 1968, 1983). The study uses failed and non-failed Australian companies that are similar in size, industry and time period to estimate the Z-score. Following the approach used by Altman (1968, 1983), this study employs a five factor model where each factor represents an accounting ratio. By using discriminate analysis, the study

calculates the weights of the five accounting ratios which are then used to estimate an Australian market-specific Z-score. The five accounting ratios are working capital to total assets, retained earnings to total assets, earnings before interest and tax to total assets, total debt to total liabilities and sales to total assets (refer to Tables G.8 and G.9 in Appendix G for details about the estimation and decomposition of the Z-score). The following equation is used to estimate the Z-score (Altman 1968, 1983).

$$ZSCORE_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \quad (3.5a)$$

Where:

$ZSCORE_i$	=	Default risk score for firm i.
β	=	Discriminate coefficient (weight).
X_1	=	Working capital/Total assets.
X_2	=	Retained earnings/Total assets.
X_3	=	Earnings before interest and taxes/Total assets.
X_4	=	Book value of total debt/Total assets.
X_5	=	Sales/Total assets.

A possible issue with the Z-score calculation is the way in which it interprets default risk. A high Z-score infers a lower default risk which could complicate the reading of the results. In order to simplify the interpretation of the Z-score result, the study multiplies each company's Z-score by negative one. As a result, a high Z-score signals a high default risk.

3.4.4.2 INFORMATION RISK

The study uses accruals quality to proxy for information risk. The measurement of information risk follows the specifications for accruals quality

used by Dechow and Dichev (2002) and applied in Francis et al. (2005). Accruals quality is calculated by taking the standard deviation of the firm-specific residual (error term) from years t to t - 5. The error terms are a result of regressing change in working capital accruals on cash flows from period t, t+1, and t-1. Additionally, the equation includes changes in revenue as well as the level of property, plant and equipment as shown in the following regression estimation.[21] The following shows the modified Dechow and Dichev (2002) accruals quality model which is used to obtain the error term.

$$\Delta WCA_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \beta_4 \Delta REV_{i,t} + \beta_5 PPE_{i,t} + \varepsilon_t \quad (3.5b)$$

Where:

$\Delta WCA_{i,t}$ = Change in current assets - change in cash - change in current liabilities + change in short-term debt.
$CFO_{i,t}$ = Cash flow from operations for the ith firm in year t.
$\Delta REV_{i,t}$ = Change in revenue for the ith firm in year t.
$PPE_{i,t}$ = Property, plant, and equipment for the ith company for year t.
ε_t = Firm specific residual for the ith company for year t.

The study interprets a low standard deviation of the error terms as a signal of high quality of accruals, thus lower information risk. Furthermore, a high variation in the errors indicates that working capital maps poorly into cash flows, which translates into inadequate financial transparency and disclosure, and high information risk. The following variable is used to proxy for information risk.

[21] All variables in equation (3.5b) are scaled by average of beginning and ending total assets.

$ACCRL_i$ = Accruals quality for ith company which is measured as the standard deviation of the firm-specific residual (error term) from years t to t-5 where the error terms are from the following estimation of Dechow and Dichev (2002) model:

$$\Delta WCA_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \beta_4 \Delta REV_{i,t} + \beta_5 PPE_{i,t} + \varepsilon_t$$

(3.5c)

3.4.5 CONTROL VARIABLES

The study controls for a number of potential confounding variables that could also impact on the access and cost dimensions of debt contracting. Prior research identifies the firm's reputation, collateral, size and industry are the key variables to control (Pittman and Fortin 2004; Klock et al. 2005). Additionally, profitability is also considered a significant driver of debt contracting variables which needs to be controlled (Ashbaugh-Skaife et al. 2006; Bhojraj and Sengupta 2003; Sengupta 1998). However, the Z-score, measured as a composition of different accounting ratios, includes return on assets which is a common profitability measure. As a result, the study does not include a separate variable to control for profitability. The measurements for reputation, collateral, size and industry are detailed in this section.

a) Reputation:

A company's reputation can influence its ability to obtain credit and the cost it pays on any borrowings (Pittman and Fortin 2004; Diamond 1989). The study uses company age as a proxy for reputation, which is the length of time a company has been incorporated (Pittman and Fortin 2004; Diamond 1989). The following variable represents the age of the company.

AGE_i = number of years since incorporation for firm i.

(3.6a)

b) Collateral

Asset collateral provides the borrower with greater access to credit markets (Bougheas et al. 2006). In accordance with prior research, the current study measures collateral as the ratio of fixed assets to total assets (Berger et al. 1997; Wen et al. 2002). The following variable represents the company's collateral.

$$COLLT_i = \frac{PPE_i}{ASSET_i}$$

(3.6b)

Where:

$COLLT_i$ = Asset collateral for firm i.

PPT_i = Property, plant, and equipment for firm i.

$ASSET_i$ = Total assets for firm i.

c) Size

Company size is an important factor which influences the relationship between corporate governance practices, access to debt and cost of debt (Minton and Schrand 1999; Byun 2007; Brewer 2007; Australian Securities Exchange (ASX) Corporate Governance Council 2006; Bougheas et al. 2006; Cantillo and Wright 2000). Previous literature by Bhojraj and Sengupta (2003), Sengupta (1998), Ashbaugh-Skaife et al, (2006), Piot and Missonier (2007), Boubakri and Ghouma (2006), James and Cotter (2007), Chen and Jian (2006), Klock et al. (2003), Anderson et al. (2004), Black, Jang et al. (2006) and

Mendez and Garcia (2007) measure company size based on total assets. Due to the fact that total assets tend to have a highly-skewed distribution (Honohan 2004; Kent and Ung 2003), the current study uses the log of total assets as a proxy for company size.

$$SIZE_i = \text{Log of book value of total assets for firm i.} \tag{3.6c}$$

d) Industry

Prior studies indicate the importance of the company's industry in determining the access to debt and cost of debt (Funchal et al. 2008). The current study uses economic sectors with two-digit Global Industry Classification Standard (GICS) codes to represent the industry. The economic sectors used are energy, materials, industrial, consumer discretionary, consumer staples, health care, utilities, information technology, and telecommunications. However, the financial sector is excluded from the analysis because financial ratios cannot be applied on companies from that sector. An industry fixed effect, which is composed of Y - 1 industry dummy variables with Y being the number of industries included in the sample, is used to capture the impact of the industry on the debt contracting variables. Each industry variable equals 1 if the observation falls within that industry and zero otherwise. The following is the industry dummy used in this research.

$$INDUSTRY_i = \begin{cases} 1 \text{ if firm i belongs to Y-1 industry} \\ 0 \text{ otherwise} \end{cases} \tag{3.6d}$$

The variables used to proxy for corporate governance, risk assessment and debt contracting are summarised in Table 3.3.

Table 3.3: Summary of Measures

Type	Variable	Definition
Dependent Variables	$QUANT_i$	Total interest bearing debt divided by total liabilities for firm i.
	$ASFIN_i$	Asset financed debt divided by total interest bearing debt for firm i.
	$BANK_i$	Bank debt divided by total interest bearing debt for firm i.
	$NONBANK_i$	Non-bank debt divided by total interest bearing debt for firm i.
	$NONINT_i$	Non-intermediated debt divided by total interest bearing debt for firm i.
	$COST_i$	Cost of debt for firm i.
Independent Variables	GOV_i	The level of corporate governance for firm i.
	$ZSCORE_i$	Default risk for firm i.
	$ACCRL_i$	Accruals quality for firm i.
Control Variables	AGE_i	Number of years since incorporation for firm i.
	$COLLT_i$	Total fixed assets by total assets for firm i.
	$SIZE_i$	Log of total assets for firm i.
	$INDUSTRY_i$	One if the observation falls within the Y - 1 industry and zero otherwise for firm i.

3.5 ANALYSIS PROCEDURES

The analysis procedures utilise the variables developed in this chapter to test the relationship between corporate governance, risk assessment and debt contracting. An initial descriptive analysis highlights the summary statistics of the different variables. Univariate analysis is conducted to examine the variances in means which is followed by multivariate analysis, OLS and 2SLS regressions, to test the hypothesis of the study. Finally, sensitivity analysis is

carried out to check for the robustness of the results. The analysis procedures are detailed in the following sections.

3.5.1 DESCRIPTIVE STATISTICS

The study calculates the descriptive statistics of the different variables in the study with the focus being on a detailed examination of debt contracting measures. Changes to the sample size that are related to the calculations of the various variables are reported and discussed in this section. The descriptive statistics include minimum and maximum values along with the means, medians and standard deviations for the various measures. Additionally, an analysis of variance (ANOVA) is applied to the variables along with Tukey's Honestly Significant Difference (HSD) post hoc test in an attempt to highlight the variations amongst the variables. Finally, the study offers a correlation analysis of the independent and control variables in the study thereby showing preliminary relationships amongst these variables.

3.5.2 MULTIVARIATE ANALYSIS

The study uses regression analysis to test the hypotheses developed in the previous chapter. The parameters for hypotheses one to three are estimated using OLS. The following are the OLS models used to test the first three hypotheses.[22]

H1a: Default risk is negatively related to the quantity of debt accessed.

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i \quad (3.7a)$$

[22] Variable definitions are listed under Table 3.3. Also '*R*' refers to the four types of debt: ASFIN, BANK, NONBANK, and NONINT.

H1b: Default risk is negatively related to the access to the different types of debt.

$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

(3.7b)

H1c: Default risk is positively related to cost of debt.

$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

(3.7c)

Hypothesis 2a: Information risk is negatively related to the quantity of debt accessed.

$$QUANT_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

(3.7d)

Hypothesis 2b: Information risk is positively related to the access to asset finance debt and negatively related to the access to bank debt, non-bank debt and non-intermediated debt.

$$TYPE_{R,i} = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

(3.7e)

Hypothesis 2c: Information risk is positively related to cost of debt.

$$COST_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

(3.7f)

Hypothesis 3a: Higher levels of corporate governance are negatively related to default risk.

$$ZSCORE_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

(3.7g)

Hypothesis 3a: Higher levels of corporate governance are negatively related to information risk.

$$ACCRL_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i \quad (3.7h)$$

Hypothesis four, which focuses on the relationship between higher levels of corporate governance and debt contracting, explicitly expects that risk is endogenously determined while corporate governance is exogenous. The DCM theoretically proposes that higher levels of corporate governance impact on access and cost dimensions of debt contracting by reducing default risk and information risk (see Figure 2.1) therefore the two risk variables are modelled to be endogenous. Moreover, the possibility that less risky firms (firms with lower default and information risk) are more likely to choose higher levels of corporate governance further supports the concern that endogeneity is an issue.

Prior accounting literature theorises the relationship between corporate governance and other firm relevant variables in the absence of the intervening effect of risk assessment.[23] Furthermore, these studies often include risk measures alongside corporate governance as covariates in OLS regression (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006). The theoretical model proposed in the DCM expects corporate governance to impact debt contracting via risk assessment therefore treating corporate governance and risk measures as covariates may cause OLS to suffer from endogeneity. This would lead the parameter estimates to be inconsistent thus clouding the interpretation of the results. The econometric

[23] OLS regression is used by Klock et al. (2005), James and Cotter (2007), Piot and Missonier-Piera (2007), Ashbaugh-Skaife et al. (2006), Sengupta (1998), Bhojraj and Sengupta (2003), Ashbaugh-Skaife and LaFond (2006), Ashbaugh et al. (2004), Blom and Schauten (2006), Boubakri and Ghouma (2006), Chen and Jian (2006) and Kose and Lubomir (2009).

problems caused by endogeneity can be addressed by using instrumental variable methods such as 2SLS (Larcker and Rusticus 2010; Hail 2002; DeFond, Raghunandan, and Subramanyam 2002). The study initially uses a 2SLS regression where corporate governance is the instrumental variable for risk. The following equations represent the 2SLS regression models estimated in this study.

Hypothesis 4a: Higher levels of corporate governance impact positively on the quantity of debt accessed via the reduction of default risk and information risk.

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

(3.8a)

Hypothesis 4b: Higher levels of corporate governance impact positively on the access to the different types of debt via the reduction of default risk and information risk.

$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

(3.8b)

Hypothesis 4c: Higher levels of corporate governance impact negatively on cost of debt via the reduction of default risk and information risk.

$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

(3.8c)

If the 2SLS results support the theorised intervening nature of risk in the DCM where corporate governance is an instrument for risk, then it is appropriate to use OLS to further test the DCM (Larcker and Rusticus 2010).

The objective behind this approach is to assess whether access to debt and cost of debt are exogenously affected by corporate governance while controlling for several firm-specific factors (refer to Table 3.3 for the definition of the variables used in the regression models). The following equations represent the OLS regression models which include corporate governance and exclude default and information risk.

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i \quad (3.9a)$$

$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i \quad (3.9b)$$

$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i \quad (3.9c)$$

The expected direction of the relationships between corporate governance, risk assessment and debt contracting are listed in Table 3.4.

Table 3.4: Expected Signs for the Parameters in the DCM

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	*QUANT*	*ASFIN*	*BANK*	*NONBANK*	*NONINT*	*COST*
GOV	+	+	+	+	+	-
ZSCORE	-	-	-	-	-	+
ACCRL	-	+	-	-	-	+
AGE	+	+	+	+	+	-
COLLT	+	+	+	+	+	-
SIZE	+	+	+	+	+	-
INDUSTRY	?	?	?	?	?	?

Notes:
QUANT = Total interest bearing debt divided by total liabilities.
ASFIN = Asset finance debt divided by total interest bearing debt.
BANK = Bank debt divided by total interest bearing debt.
NONBANK = Non-bank debt divided by total interest bearing debt.
NONINT = Non-intermediated debt divided by total interest bearing debt.
COST = Cost of debt.
GOV = The level of corporate governance.
ZSCORE = Default risk.
ACCRL = Accruals quality.
AGE = Number of years since incorporation.
COLLT = Total fixed assets divided by total assets.
SIZE = Log of total assets.
INDUSTRY = One if the observation falls within the Y - 1 industry and zero otherwise.

The DCM assumes that small companies exhibit high levels of information and default risks which impact unfavourably on their debt contracting outcomes. As a result, the informational advantages of higher levels of corporate governance could potentially provide smaller companies with greater benefits, in terms of increased financial disclosure and lower agency conflicts, relative to larger companies. Consequently, the impact of corporate governance on the debt contracting outcomes is expected to differ for smaller companies. The study introduces governance-size interaction terms to assess the influence of governance on debt contracting variables for small and large companies. The first interaction term is GOV_S which is measured by multiplying GOV by the small company dummy variable, SML. The variable SML equals one if the company belongs to the lower size quintile and zero

otherwise. The second interaction term is GOV_L which is measured by multiplying GOV by the large company dummy variable. The variable LRG equals one if the company belongs to the upper size quintile and zero otherwise.

$GOV\_S_i =$ GOV multiplied by SML for firm i.

(3.10a)

$GOV\_L_i =$ GOV multiplied by LRG for firm i.

(3.10b)

Company size is determined by ranking the companies based on total assets and then dividing them into quintiles. Small companies are located in the lower quintile while large companies are in the upper quintile. As a result, the variable SML equals one if the company is in the lower quintile and zero otherwise. The variable LRG equals one if the company is in the upper quintile and zero otherwise.

$$SML_i = \begin{cases} 1 \text{ if firm i belongs to companies in the lower quintile} \\ 0 \text{ otherwise} \end{cases}$$

(3.11a)

$$LRG_i = \begin{cases} 1 \text{ if firm i belongs to companies in the upper quintile} \\ 0 \text{ otherwise} \end{cases}$$

(3.11b)

The study expects the relationship between corporate governance practices, access to debt, and cost of debt to be greater for small companies relative to large companies. The following equations represent the OLS estimations which include governance-size interaction terms.

Hypothesis 5a: Small companies that implement higher levels of corporate governance access more debt.

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 GOV\_S_i + \beta_4 GOV\_L_i + \beta_5 SML_i + \beta_6 LRG_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 INDUSTRY_i + e_i \quad (3.12a)$$

Hypothesis 5b: Small companies that implement higher levels of corporate governance access more of each type of debt.

$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 GOV\_S_i + \beta_4 GOV\_L_i + \beta_5 SML_i + \beta_6 LRG_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 INDUSTRY_i + e_i \quad (3.12b)$$

Hypothesis 5c: Small companies that implement higher levels of corporate governance pay a lower cost of debt.

$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 GOV\_S_i + \beta_4 GOV\_L_i + \beta_5 SML_i + \beta_6 LRG_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 INDUSTRY_i + e_i \quad (3.12.c)$$

where '*R*' refers to the four types of debt: ASFIN, BANK, NONBANK, and NONINT. The variable GOV_L equals GOV multiplied by LRG, where LRG equals one if the company is in the upper size quintile and zero otherwise. The variable GOV_S equals GOV multiplied by SML, where SML equals one if the company is in the lower size quintile and zero otherwise. The variable SIZE is excluded from the regression estimations to prevent collinearity with SML and LRG dummy variables. Furthermore, the inclusion of SML and LRG reduces the need to control for company size. The definitions for the other variables are listed under table 3.3.

3.5.3 SENSITIVITY ANALYSIS

The study applies further tests to assess the robustness of the original findings. This includes using alternative specifications to test the relationships in the DCM. The primary sensitivity analysis uses alternative measures for access to debt, corporate governance, default risk, information risk and size dummy variables.

The method used to calculate access to debt variables scales the amount of interest bearing debt by financial liability items such as total liabilities and interest bearing debt. Although the calculation method is in accordance with past studies (González et al. 2007; Bougheas et al. 2006; Denis and Mihov 2003; Cantillo and Wright 2000) an alternate approach is introduced which requires the variables to be scaled by total assets. One of the advantages of the alternative method is that it demonstrates the degree of financing from interest bearing debt necessary to secure the firm's assets.

An alternative corporate governance composite is introduced as a proxy for corporate governance practices. The score ranges from 0 to 140 where 140 is the highest possible score a company can achieve. The composition of the alternate corporate governance score requires scaling each of the 14 individual corporate governance variables. Each variable is redesigned to yield a score of 0 to 10 where 10 is the highest score a company can achieve. The resulting score from each variable is added to produce the overall score of 0 to 140. The alternative corporate governance score provides higher variability in the data which captures information that could have been overlooked by the original corporate governance score.

An alternative Z-score is used to proxy for default risk. The score is calculated using a stepwise multivariate discriminate analysis of ten financial ratios. The Z-score is used to test the relationship between default risk and the debt contracting dimensions. Furthermore, the variable is used in testing the relationship between corporate governance and default risk.[24]

The study further examines information risk by separating it into discretionary and innate components (Francis et al. 2005, 2004; Dechow and Dichev 2002; Gray et al. 2009). Furthermore, the two components of information risk are then used as alternate measures for the accruals quality to test whether they have a differential impact on the debt contracting outcomes. The DCM adopts a similar position to prior studies (Francis et al. 2005) by proposing that innate information risk is expected to have more influence on debt contracting in comparison to discretionary information risk.[25]

Finally, there are three different approaches used to assess the robustness of the relationship between corporate governance and debt contracting for different sized companies. The first approach introduces two size dummy variables which are used in place of the governance-size interaction terms. The small size dummy variable equals one if the company falls within the lower quintile and zero otherwise (companies are ranked based on their total assets). The large size dummy equals one if the company falls within the upper quintile and zero otherwise.

The second approach focuses on re-categorising firm size. The study uses the ASX Top 300 companies listed on the All Ordinaries index as an alternate size classification. Companies listed in the Top 300 are required to

[24] The ratio times interest earned is also used as an additional default risk measure.
[25] The study uses the ask-bid spread and abnormal accruals as additional measures for information risk.

have an audit committee which complies with PGCG (Australian Securities Exchange (ASX) Corporate Governance Council 2007b). According to the new size categorisation, a Top 300 company is perceived as having a higher level corporate governance structure in addition to being a larger company relative to other publicly listed firms. To measure the new size categorisation, the study uses a dummy variable which equals one if the company is in the Top 300 and zero otherwise.

The third approach examines exclusively the impact of governance for the small companies; these are defined by the companies that are ranked in the lower quintile. An OLS regression is used to test the impact of corporate governance on debt contracting for a subset of small companies. The focus on a sub-sample of small companies enables the investigation of how a variation in corporate governance amongst smaller firms can influence debt contracting for those firms. This approach specifically tests whether or not the small companies with higher levels of corporate governance benefit in terms of access to and cost of debt.

3.6 SUMMARY

Chapter three describes the empirical methods used to test the debt contracting hypotheses which were constructed in chapter two. Additionally, the chapter presents the sample and describes the data collection process. The study develops the measures used in estimating the regression model which tests the relationship between corporate governance, risk assessment, and debt contracting. The following chapter presents the results of the analysis detailed in the current chapter.

CHAPTER FOUR: ANALYSIS OF EMPIRICAL RESULTS

4.1 INTRODUCTION

This chapter tests the hypotheses stated at the end of chapter two and presents the results of the data analyses as described in chapter three. The chapter also presents the summary statistics for the dependent, independent and control variables followed by the multivariate regression results and hypothesis testing.

The remainder of the chapter is separated into four sections. Section 4.2 describes the sample after removing missing and extreme observations and outlines the descriptive analysis for the study. Section 4.3 presents the results from the hypothesis tests. Section 4.4 reports the sensitivity analysis results. Finally, section 4.5 summaries the results from the chapter.

4.2 DESCRIPTIVE ANALYSIS

The descriptive analysis focuses on the summary statistics for the dependent, independent and control variables. This section describes the sample frame after the exclusion of missing data and outliers. Additionally, it details results from the analysis of variance (ANOVA) undertaken to compare means across size for the dependent and independent variables. This section also presents the correlation analysis results which provide a preliminary description of interactions between variables in a bivariate setting.

4.2.1 SAMPLE FRAME

The sample frame, as outlined in the previous chapter, consists of 1,239 non-financial public companies listed on the Australian Stock Exchange with a 2007 June 30 balance date. Due to the study's focus on companies that contract interest bearing debt, 618 companies that do not have interest bearing debt are excluded from the sample frame. Additionally, the cost of interest bearing debt represents an important aspect of this research and consequently a further 16 companies that do not report cost of debt in their annual reports are also omitted from the sample frame. A summary of the sample details is provided in Table 4.1.

Table 4.1: Sample Frame

Sample Details	Missing Values	Extreme Outliers	Final Sample
Initial sample frame			**1,239**
Companies with interest bearing debt	618	0	
Sample frame including the following variables:			
COST	16	0	
ZSCORE	0	4	
COLLT	0	6	
Main sample			**595**
Sample frame including information risk variable:			
ACCRL	382	8	
Sub-sample			**205**

Notes:
COST = Cost of debt.
ZSCORE = Default risk.
ACCRL = Accruals quality.
COLLT = Total fixed assets divided by total assets.

The sample frame is further refined in order to analyse and test the relationship between access and cost of debt variables and corporate

governance. Following the treatment of outliers by McDonald (1973) and Subramanyam (1996), ten companies are excluded from the sample because they are more than three standard deviations from their respective means.[26] The ten companies omitted from the sample are composed of four companies that have extreme ZSCORE values (default risk variable) and six companies that have extreme COLLT values (collateral variable). The exclusion of the ten companies leaves 595 companies with available data, which make up the main sample used in the first stage of multivariate analysis.

The second stage of the analysis requires the inclusion of ACCRL (information risk variable). Due to the specific nature of the calculation that is required to obtain ACCRL, 390 companies are excluded from the sample.[27] The excluded companies are composed of 382 companies that have missing values and eight companies that have extreme values. The exclusion of the 390 companies result in 205 companies that have available information which comprise the study's sub-sample. This sub-sample is used only when testing the relationship between ACCRL and other variables.

[26] The ten observations are considered extreme outliers and therefore they are deleted from the data set. An alternate approach is to winsorize at the top/bottom 1 percentile and 99 percentile values. However, according to Watson (1990) and Mahir and Al-Khazaleh (2009) deletion of outliers is equivalent to winsorizing and therefore the current study adopts the deletion of the extreme outliers consistent with prior studies.

[27] The calculation of ACCRL requires 5 years worth of data for each company. As a result, many companies are excluded from the main sample. Refer to section 3.4.4.2 for calculation details.

4.2.2 DEBT CONTRACTING VARIABLE DESCRIPTIONS

This section presents summary statistics for the variables that proxy for access to quantity and type of debt as well as cost of debt.[28] Furthermore, a detailed company size analysis is presented to show the differences in the debt contracting variables for small, medium and large companies.

4.2.2.1 ACCESS TO THE QUANTITY OF DEBT

Access to the quantity of debt is investigated by analysing the variable QUANT, which is measured as total interest bearing debt divided by total liabilities. Table 4.2 provides the summary statistics for QUANT for all companies, as well as small, medium and large companies in the main sample.[29] The categorisation for company size is based on the ranking of total assets into quintiles where small companies are located in the lower quintile, medium companies are found in the middle quintile, and large companies are positioned in the upper quintile.

[28] An extended discussion of preliminary debt contracting results which includes industry analysis is presented in Appendix F.
[29] Refer to Table G.1 in Appendix G for the complete table that shows all quintiles for QUANT.

Table 4.2: Summary Statistics for QUANT

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All Companies			
QUANT	595	0.39	0.39	0.26	0.00	0.97
			Small Companies (Lower Quintile)			
QUANT	119	0.36	0.30	0.28	0.00	0.94
			Medium Companies (Middle Quintile)			
QUANT	119	0.34	0.32	0.26	0.00	0.97
			Large Companies (Upper Quintile)			
QUANT	119	0.47	0.50	0.26	0.00	0.94

Notes:
QUANT = Total interest bearing debt divided by total liabilities.
N = Number of companies.

The mean for QUANT is 0.39 which indicates that interest bearing debt contracts are a significant component of total liabilities. The QUANT mean for companies in the lower and upper quintiles are 0.36 and 0.47 respectively. These results initially suggest that small and large companies have varying access to interest bearing debt relative to other companies.

ANOVA is used in order to formally examine whether the differences in means between small, medium and large companies are statistically significant. The ANOVA result presented in Table 4.3 show that the mean QUANT are statistically different across different sized companies. Furthermore, the study conducts a Tukey's HSD post hoc test to find which of the means for the three size groups are significantly different. The test results show that the mean for large companies is significantly different from other means which indicates that larger companies have greater access to interest bearing debt relative to other companies.[30]

[30] Refer to Table G2 in Appendix G for Tukey's HSD post hoc test results for QUANT.

Table 4.3: ANOVA Results for Quantity of Debt Accessed for Different Sized Companies

	Mean				
Variable	**Small**	**Medium**	**Large**	**F Statistic**	**P value**
QUANT	0.36	0.34	0.47	8.008	**0.000*** **

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

4.2.2.2 ACCESS TO TYPES OF DEBT

Access to types of debt is examined by studying the relative proportions of asset finance, bank debt, non-bank debt and non-intermediated debt to interest bearing debt. As shown in Table 4.4, debt types are categorised into short-term and long-term debt where the former comprises 21% of total interest bearing debt while the latter makes up 79%.[31] Additionally, non-intermediated debt which includes convertible and non-convertible notes, bonds and commercial papers comprises the largest debt type at $54.2 billion or 43.3% of total interest bearing debt. Bank debt which includes bank loans, facilities and overdrafts totals $42.4 billion which is 33.9% of the total interest bearing debt thereby making it the second largest type of debt. Non-bank debt which includes loans from non-bank financial institutions, directors and related entities is the third largest debt type at $24.2 billion or 19.3% of total interest bearing debt. Finally, asset finance which is represented by finance lease and hire purchases amounts to $4.3 billion or 3.4% of total interest bearing debt making it the smallest debt type relative to the other types of debt.

[31] A future study could investigate the impact of corporate governance on short-term and long-term interest bearing debt (See section 5.5 in Chapter five).

Table 4.4: Interest Bearing Debt across the Four Debt Types

Type	Debt Quantities (Billions)	%
Short-Term Debt		
(i) Asset finance debt	$1.0	0.8
(ii) Bank debt	16.4	13.1
(iii) Non-bank debt	3.4	2.7
(iv) Non-intermediated debt	5.9	4.7
Total	**26.7**	**21.3**
Long-Term Debt		
(i) Asset finance debt	3.3	2.6
(ii) Bank debt	26.0	20.8
(iii) Non-bank debt	20.8	16.6
(iv) Non-intermediated debt	48.3	38.6
Total	**98.4**	**78.7**
Total Interest Bearing Debt	**$125.1**	**100.0**

Access to debt types are further examined by the use of four other variables which represent the proportion of each debt type relative to the total interest bearing debt. Table 4.5 presents the summary statistics for the four debt type variables. The table shows information for all companies, as well as small, medium and large companies.[32]

The variable ASFIN is measured as finance lease and hire purchase debt divided by total interest bearing debt. ASFIN has a mean of 0.27 and a standard deviation of 0.40. Furthermore, the mean values for ASFIN in the lower and upper quintiles are 0.47 and 0.09 respectively. This is a crude indication that small and large companies could have varying access to ASFIN.

[32] Refer to Table G.3 in Appendix G for the complete table that shows all quintiles for the four debt types.

Table 4.5: Summary Statistics for Access to the Four Debt Types

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All Companies			
ASFIN	595	0.27	0.03	0.40	0.00	1.00
BANK	595	0.33	0.01	0.41	0.00	1.00
NONBANK	595	0.19	0.00	0.35	0.00	1.00
NONINT	595	0.20	0.00	0.35	0.00	1.00
			Small Companies (Lower Quintile)			
ASFIN	119	0.42	0.09	0.47	0.00	1.00
BANK	119	0.11	0.00	0.28	0.00	1.00
NONBANK	119	0.27	0.00	0.41	0.00	1.00
NONINT	119	0.20	0.00	0.38	0.00	1.00
			Medium Companies (Middle Quintile)			
ASFIN	119	0.33	0.07	0.41	0.00	1.00
BANK	119	0.31	0.00	0.41	0.00	1.00
NONBANK	119	0.18	0.00	0.33	0.00	1.00
NONINT	119	0.18	0.00	0.34	0.00	1.00
			Large Companies (Upper Quintile)			
ASFIN	119	0.09	0.00	0.23	0.00	1.00
BANK	119	0.48	0.49	0.41	0.00	1.00
NONBANK	119	0.18	0.00	0.32	0.00	1.00
NONINT	119	0.25	0.00	0.36	0.00	1.00

Notes:
ASFIN = Asset finance debt divided by total interest bearing debt.
BANK = Bank debt divided by total interest bearing debt.
NONBANK = Non-bank debt divided by total interest bearing debt.
NONINT = Non-intermediated debt divided by total interest bearing debt.

The variable BANK which is measured by dividing bank loans, facilities and overdrafts by total interest bearing debt has a mean of 0.33 and a standard deviation of 0.41. It is clear from Table 4.5 that BANK has the highest mean relative to the other debt type variables which suggests that it is the most accessed type of debt. An ANOVA is conducted to formally assess the variation in the means for the four debt types. The results presented in Table 4.6 indicate the means for the four debt types are statistically different from each other, and provide support to the claim that bank debt is accessed more than other debt types.

Table 4.6: ANOVA Results for Access to the Four Debt Types

Mean					
ASFIN	**BANK**	**NONBANK**	**NONINT**	**F Statistic**	**P value**
0.27	0.33	0.19	0.20	18.168	**0.000*** **

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

Summary statistics for the last two debt types, NONBANK and NONINT, are presented in Table 4.5. NONBANK is measured as loans from non-bank financial intermediaries divided by total interest bearing debt. NONBANK has a mean of 0.19 and a standard deviation of 0.35. Additionally, NONINT which is calculated as non-intermediated debt divided by total interest bearing debt has a mean of 0.20 and a standard deviation of 0.35.

Table 4.5 also presents summary statistics for the four debt type variables based on size. It is clear that large companies access ASFIN less than other companies whilst they are more partial to accessing BANK. The ANOVA analysis presented in Table 4.7 shows that the means for ASFIN and BANK across small, medium and large companies are statistically different. Tukey's HSD post hoc test shows that the ASFIN's mean for large companies is significantly different from other means which indicates that large companies access ASFIN less often than other companies. Additionally, Tukey's test results show that the means for BANK are significantly different from each other across all sizes.[33]

[33] Refer to Table G4 in Appendix G for the results of Tukey's HSD post hoc test for ASFIN and BANK.

Table 4.7: ANOVA Results for Access to Debt Types for Different Sized Companies

Variable	Mean			F Statistic	P value
	Small	Medium	Large		
ASFIN	0.42	0.33	0.09	23.459	**0.000*****
BANK	0.11	0.31	0.48	28.206	**0.000*****
NONBANK	0.27	0.18	0.18	2.557	0.079
NONINT	0.20	0.18	0.25	1.443	0.238

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

4.2.2.3 COST OF DEBT

Cost of debt is measured as the calculated weighted average interest rate as disclosed in the notes to the financial statements. Table 4.8 shows the average cost of debt for the different sized companies.[34] It is evident from the table that the smallest companies are contracting the highest cost of debt at 9.16%. Medium sized companies have an average cost of debt of 8.42%. Finally, large companies incur the lowest cost of debt at 7.10%.

Table 4.8: Summary Statistics for Cost of Debt (%)

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
All Companies						
COST	595	8.17	7.85	2.20	0.90	24.03
Small Companies (Lower Quintile)						
COST	119	9.08	8.55	2.45	4.00	24.03
Medium Companies (Middle Quintile)						
COST	119	8.33	8.02	2.14	2.30	20.46
Large Companies (Upper Quintile)						
COST	119	7.12	7.04	1.70	1.05	17.80

[34] Refer to Table G.5 in Appendix G for the complete table that shows all quintiles for COST.

The results of the ANOVA tests presented in Table 4.9 show that the means for COST across the different size groups are statistically different. Tukey's HSD test suggests that the means for all sizes are significantly different from each other.[35] The variations in cost of debt across size are an indicator of the importance of company size in the multivariate analysis.

Table 4.9: ANOVA Results for Cost of Debt for Different Sized Companies

	Mean (%)				
Variable	**Small**	**Medium**	**Large**	**F Statistic**	**P value**
COST	9.08	8.33	7.12	26.012	**0.000*****

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

The study presents the summary statistics for the three debt contracting variables in the main sample. The results show that access to quantity of interest bearing debt represents 39% of total liabilities. Additionally, larger companies access greater quantities of interest bearing debt relative to smaller companies. As for the types of debt accessed, the results indicate that bank debt is the most accessed debt type with larger companies accessing bank debt more than smaller companies. Asset finance debt is the only debt type that is accessed more by smaller companies relative to other companies. Finally, cost of debt for companies in the main sample is approximately 8.17%. Furthermore, the results suggest that smaller companies pay a higher cost of debt relative to other companies. The next section addresses the description of independent variables.

[35] Refer to Table G6 in Appendix G for the results of Tukey's HSD post hoc test for COST.

4.2.3 INDEPENDENT VARIABLE DESCRIPTION

The summary statistics for the corporate governance and default risk variables are shown in Table 4.10.[36] Corporate governance, GOV, has a mean of 8.19 and a standard deviation of 3.59.[37] GOV is measured on a scale of zero to 14, where a score of 14 represents the highest level of corporate governance a company can achieve. Default risk, ZSCORE, which is estimated by applying parameters from multivariate linear discriminate (MLD) analysis has a mean of 0.49 and a standard deviation of 1.46. The higher the ZSCORE the more likely a firm will default on its financial obligations. A decomposition of the Z-score shows that it is mainly driven by the leverage ratio as well as asset turnover ratio. Companies with greater debt to assets will have a higher Z-score while companies with high levels of sales to assets will receive a lower Z-score.[38]

The independent variables' summary statistics for small, medium and large companies are presented in Table 4.10. The summary statistics for the lower quintile show that GOV has a mean of 5.41 which is lower than the mean for all companies in the main sample. However, the summary statistics for companies at the upper quintile show the mean for GOV to be 10.82 which is above the sample mean. The results of the ANOVA test, as shown in Table 4.11, suggest that means for GOV for the three size categories are statistically

[36] The information risk variable, ACCRL is discussed in section 4.2.5 as part of the variables that are represented in the sub-sample.
[37] Refer to Table G.7 in Appendix G for the complete table that shows all quintiles for GOV and ZSCORE.
[38] Refer to Tables G.8 and G.9 in Appendix G for a detailed overview of the estimation and decomposition of ZSCORE.

different. This result is supported by Tukey's HSD which shows that the means for the three sizes are different from each other.[39]

Table 4.10: Summary Statistics for the Independent Variables

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All Companies			
GOV	595	8.19	9.00	3.59	0.00	14.00
ZSCORE	595	0.49	0.75	1.46	-3.73	4.58
			Small Companies (Lower Quintile)			
GOV	119	5.41	6.00	2.97	0.00	11.00
ZSCORE	119	1.64	1.46	0.95	-2.89	4.58
			Medium Companies (Middle Quintile)			
GOV	119	8.09	9.00	2.96	0.00	14.00
ZSCORE	119	0.30	0.46	1.49	-3.73	2.52
			Large Companies (Upper Quintile)			
GOV	119	10.82	12.00	2.71	2.00	14.00
ZSCORE	119	-0.28	-0.43	1.182	-2.87	3.35

Notes:
GOV = Corporate governance score.

The different size categories show varying values for ZSCORE. The summary statistics at the lower quintile present the mean for ZSCORE to be 1.64 which is higher than the mean for the main sample. The information at the upper quintile shows the mean for ZSCORE to be -0.28 which is lower than the sample mean. The ANOVA results suggest that the ZSCORE means for the three size groups are statistically different. Tukey's HSD test shows that the means for the three size groups are significantly different from each other.

[39] Refer to Table G10 in Appendix G for the complete results of Tukey's HSD post hoc test for GOV, ACCRL and ZSCORE.

Table 4.11: ANOVA Results for the Independent Variables for Different Sized Companies

Variable	Mean			F Statistic	P value
	Small	Medium	Large		
GOV	5.41	8.09	10.82	104.910	**0.000*****
ZSCORE	1.64	0.30	-0.28	76.050	**0.000*****

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

The two independent variables discussed in this section are corporate governance and default risk (information risk which is the third independent variable is presented in section 4.2.5). The summary statistics show that smaller companies have a higher default risk and implement lower levels of corporate governance in comparison to other companies. The next section provides a descriptive analysis for the study's control variables.

4.2.4 CONTROL VARIABLE DESCRIPTION

This section investigates the descriptive analysis for the control variables used in the analysis. The summary statistics for the control variables across all companies, as well as the lower, middle and upper quintiles for the main sample are presented in Table 4.12.[40] Reputation, AGE, is measured as the number of years since the company's incorporation. AGE has a mean of 19.98 years and a standard deviation of 18.33. Collateral, COLLT, is measured as fixed assets divided by total assets. COLLT has a mean of 0.33 and a

[40] Refer to Table G.11 in Appendix G for the complete table that shows all quintiles for AGE, COLLT and SIZE.

standard deviation is 0.29. Finally, company size, SIZE, is calculated as the log of total assets. SIZE has a mean of 7.78 and a standard deviation of 0.93.[41]

Table 4.12 shows that AGE varies across company size. The mean for AGE in the upper quintile is 28.04 which is greater than the means reported for AGE under other quintiles. The ANOVA test results presented in Table 4.16 suggest that AGE means for small, medium and large companies are statistically different. Tukey's HSD test shows that the mean for large sized companies is significantly different from other means which indicates that larger companies are older than other companies.[42]

Table 4.12: Summary Statistics for the Control Variables

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All Companies			
AGE	595	19.98	15.00	18.33	1.00	124.00
COLLT	595	0.33	0.26	0.29	0.00	1.18
SIZE	595	7.78	7.67	0.93	5.71	10.87
			Small Companies (Lower Quintile)			
AGE	119	13.92	10.00	10.91	1.00	54.00
COLLT	119	0.25	0.16	0.26	0.00	1.07
SIZE	119	6.62	6.75	0.32	5.71	7.01
			Medium Companies (Middle Quintile)			
AGE	119	18.36	16.00	13.63	1.00	94.00
COLLT	119	0.36	0.24	0.32	0.00	1.18
SIZE	119	7.67	7.67	0.13	7.45	7.90
			Large Companies (Upper Quintile)			
AGE	119	28.04	20.00	24.92	1.00	124.00
COLLT	119	0.44	0.41	0.30	0.00	1.08
SIZE	119	9.20	9.10	0.53	8.49	10.87

Notes:
AGE = Number of years since incorporation.
COLLT = Total fixed assets divided by total assets.
SIZE = Log of total assets.

[41] SIZE varies across small, medium and large companies. This is as expected due to the nature of the size categorisation.
[42] Refer to Table G12 in Appendix G for the results of Tukey's HSD post hoc test for AGE and COLLT. No test is conducted on SIZE because by definition SIZE is expected to differ across size.

Summary statistics for COLLT are presented in Table 4.12. As shown in the table, large companies have a higher mean for COLLT when compared to the mean for all companies in the main sample. The ANOVA test results in Table 4.13 show that the mean for COLLT across small medium and large companies are statistically different from each other. Tukey's HSD test shows that the mean for small sized companies is significantly different from other means which implies that smaller companies have less collateral relative to other companies.

Table 4.13: ANOVA for Control Variables for Different Sized Companies

	Mean				
Variable	**Small**	**Medium**	**Large**	**F Statistic**	**P value**
AGE	13.94	18.36	28.04	20.102	**0.000*** **
COLLT	0.25	0.35	0.44	12.313	**0.000*** **

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

The control variables used in this study are company age, level of collateral, and size. The summary statistics for the three variables indicate that smaller companies are younger and have less collateral relative to other companies. The next section discusses the debt contracting variables, independent variables and control variables for the study's sub-sample.

4.2.5 SUB-SAMPLE VARIABLE DESCRIPTION

The inclusion of the information risk variable, ACCRL, into the analysis results in excluding 390 companies from the main sample which leaves 205 companies that compose the study's sub-sample. This section reports the

summary statistics for all the variables in the sub-sample as well as the variations in the variables across size.

The summary statistics for the debt contracting variables used in the sub-sample are presented in Table 4.14.[43] QUANT has a mean of 0.43 which is higher than the 0.39 mean reported for the main sample. Additionally, the mean for QUANT varies across small, medium and large companies. The ANOVA and Tukey's HSD post hoc tests indicate that the means for QUANT are significantly different for the three size groups whilst small and large companies are significantly different from medium companies.[44]

The summary statistics for access to type of debt variables are presented in Table 4.14. ASFIN has a mean of 0.21 which is lower than the 0.27 mean recorded for the main sample. Across size groups in the sub-sample, large companies have lower access to ASFIN relative to other companies. The ANOVA test for ASFIN indicates that the means across the three size groups are significantly different. Tukey's HSD post hoc test suggests that the mean for large companies are significantly different to the means for other companies. The means for BANK and NONBANK are 0.38 and 0.19 respectively. However, across the three size groups, the ANOVA results show no significant differences in means for BANK and NONBANK. Finally, the mean for NONINT is 0.22 in the sub-sample which is slightly higher than the mean of 0.20 reported in the main sample. The ANOVA test shows that the means for small, medium and large companies are different. However, Tukey's

[43] Tables H1 to H5 in Appendix H provide information on all quintiles for all variables in the sub-sample.
[44] Tables H6 and H7 in Appendix H provide information on ANOVA and Tukey's HSD post hoc test for the sub-sample.

HSD post hoc test reveals that the differences for the means are most significant for medium and large companies.

Table 4.14: Sub-sample Summary Statistics for Debt Contracting Variables

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All Companies			
QUANT	205	0.43	0.44	0.25	0.00	0.97
ASFIN	205	0.21	0.03	0.35	0.00	1.00
BANK	205	0.38	0.23	0.41	0.00	1.00
NONBANK	205	0.19	0.00	0.32	0.00	1.00
NONINT	205	0.22	0.00	0.34	0.00	1.00
COST	205	8.04%	7.51%	2.43%	1.05%	20.46%
			Small Companies (Lower Quintile)			
QUANT	41	0.38	0.30	0.27	0.01	0.97
ASFIN	41	0.32	0.05	0.43	0.00	1.00
BANK	41	0.28	0.00	0.40	0.00	1.00
NONBANK	41	0.20	0.00	0.33	0.00	1.00
NONINT	41	0.21	0.00	0.36	0.00	1.00
COST	41	9.38%	8.78%	2.72%	5.60%	19.52%
			Medium Companies (Middle Quintile)			
QUANT	41	0.44	0.52	0.25	0.03	0.86
ASFIN	41	0.23	0.07	0.32	0.00	1.00
BANK	41	0.47	0.40	0.41	0.00	1.00
NONBANK	41	0.16	0.00	0.28	0.00	1.00
NONINT	41	0.14	0.00	0.29	0.00	1.00
COST	41	7.78%	7.47%	1.63%	6.03%	15.92%
			Large Companies (Upper Quintile)			
QUANT	41	0.51	0.52	0.21	0.00	0.86
ASFIN	41	0.04	0.00	0.14	0.00	1.00
BANK	41	0.42	0.46	0.37	0.00	1.00
NONBANK	41	0.16	0.00	0.32	0.00	1.00
NONINT	41	0.38	0.31	0.36	0.00	1.00
COST	41	6.77%	6.67%	1.09%	4.49%	10.84%

The summary statistics for COST are presented in Table 4.14. The mean for COST is 8.04% which is lower than the 8.17% mean reported for COST in the main sample. Across, the three size groups, the means for COST are significantly different as indicated by the ANOVA test. Furthermore,

Tukey's HSD post hoc test shows that the COST means for small, medium and large companies are significantly different from each other.

Table 4.15: Sub-sample Summary Statistics for Independent and Control Variables

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All Companies			
GOV	205	9.51	11.00	3.16	1.00	14.00
ZSCORE	205	-0.01	-0.16	1.36	-2.81	3.32
ACCRL	205	0.45	0.29	0.46	0.04	2.50
AGE	205	28.67	23.00	21.18	2.00	124.00
COLLT	205	0.43	0.37	0.31	0.00	1.18
SIZE	205	8.22	8.08	0.97	6.07	10.87
			Small Companies (Lower Quintile)			
GOV	41	6.90	7.00	3.10	1.00	12.00
ZSCORE	41	1.22	1.38	1.105	-2.35	3.32
ACCRL	41	0.75	0.61	0.53	0.14	2.20
AGE	41	21.56	17.00	17.23	2.00	101.00
COLLT	41	0.37	0.29	0.28	0.00	1.07
SIZE	41	6.99	7.08	0.386	6.07	7.41
			Medium Companies (Middle Quintile)			
GOV	41	10.34	11.00	2.39	5.00	14.00
ZSCORE	41	-0.13	-0.16	1.40	-2.80	2.77
ACCRL	41	0.36	0.27	0.36	0.07	1.81
AGE	41	24.80	22.00	16.13	10.00	99.00
COLLT	41	0.41	0.37	0.26	0.04	0.94
SIZE	41	8.08	8.08	0.18	7.80	8.43
			Large Companies (Upper Quintile)			
GOV	41	11.10	12.00	2.90	2.00	14.00
ZSCORE	41	-0.45	-0.45	0.90	-2.04	2.08
ACCRL	41	0.26	0.19	0.26	0.04	1.41
AGE	41	37.02	29.00	26.29	4.00	124.00
COLLT	41	0.45	0.41	0.32	0.00	1.06
SIZE	41	9.69	9.62	0.41	9.14	10.87

The summary statistics for the independent and control variables in the sub-sample are presented in Table 4.15. The mean for GOV in the sub-sample is 9.51 which is higher than the 8.19 mean reported for GOV in the main sample. Additionally, the ANOVA and Tukey's post hoc tests show that the means for GOV across the three size groups are significantly different. Tukey's

post hoc test shows that the mean for small companies is significantly different from the others.

The results show that the mean for ZSCORE is -0.01 which is lower than the 0.49 mean reported for ZSCORE in the main sample. According to the ANOVA test results, the ZSCORE means in the sub-sample across small, medium and large companies are significantly different from each other. Tukey's post hoc test indicates that the ZSCORE mean for small companies is significantly different to the means for other companies.

Information risk is represented by an accruals quality variable, ACCRL, which is calculated by using the Dechow and Dichev (2002) model[45]. ACCRL has a mean of 0.50 and a standard deviation of 0.58. The summary statistic for the lower quintile shows that ACCRL has a mean of 0.87 which is higher than the mean for all companies in the sub-sample. Additionally, the mean for ACCRL in the upper quintile is 0.24 which is lower than the mean for all companies in the sub-sample. The ANOVA test results show that the means for ACCRL are statistically different. Moreover, Tukey's HSD test suggests that the mean for small sized companies is significantly different from other means. This indicates that small companies have a low quality of accruals (high information risk) and that large companies have a high quality of accruals (low information risk).

The summary statistics for the control variables AGE, COLLT and SIZE are shown in Table 4.15. The mean for AGE in the sub-sample is 28.67 while the standard deviation is 21.18. The ANOVA test results suggest that the AGE means for the three size groups are significantly different from each other.

[45] Refer to Table H.8 in Appendix H for a detailed overview of the regression analysis results used in the calculation of ACCRL.

The Tukey's post hoc test shows that the mean for AGE for large companies is significantly different from the other means. Table 4.15 also reports a mean of 0.43 for COLLT which is greater than the mean in the main sample. Additionally, the ANOVA test results indicate that the means for COLLT are not significantly different across the three groups. Finally, the mean for SIZE is 8.22 in the sub-sample and the standard deviation is 0.97.

This section shows summary statistics for the debt contracting, independent and control variables in the sub-sample. The quantity of debt accessed is 43% of total liabilities with smaller companies accessing less interest bearing debt relative to larger companies. Similar to the results presented for the main sample, bank debt is the most accessed debt type. However, the results indicate that access to bank debt does not differ across company size. Additionally, small companies in the sub-sample access more asset finance debt relative to other companies. The summary statistics for the independent and control variables show that smaller companies have lower levels of corporate governance and higher default risk and information risk. Furthermore, smaller companies are younger with less collateral relative to other companies. The next section presents the correlation analysis for the independent and control variables used in the main sample and sub-sample.

4.2.6 CORRELATION ANALYSIS

Correlation analysis results for the independent and control variables are reported for the main sample in Tables 4.16 and for the sub-sample in Table 4.17. For the main sample of 595 companies, several of the variables are correlated with each other, but it is clear that the magnitude of the correlations

is low. Nonetheless, the correlation between SIZE and GOV, which is 0.54, could pose a collinearity problem when the two variables are tested in a multivariate setting. Additionally, the degree of correlation between the variables in the sub-sample is also low as reported in Table 4.17. Overall, the low magnitude of the correlations amongst the exogenous variables indicates that multicollinearity should not be a problem for the two sample sets. To formally substantiate the lack of multicollinearity between the independent and control variables, the study conducts collinearity diagnostics and finds that the variance inflation factors (VIF) indicate no significant multicollinearity in the data.[46] The next section focuses on testing the hypotheses developed in previous chapters in order to investigate the relationship between debt contracting, independent and control variables.

Table 4.16: Correlation Analysis for the Main Sample

	GOV	ZSCORE	AGE	COLLT	SIZE
GOV	1.000				
ZSCORE	**-0.403*****	1.000			
AGE	**0.147*****	**-0.198*****	1.000		
COLLT	**0.137*****	**-0.171*****	**0.258*****	1.000	
SIZE	**0.537*****	**-0.441*****	**0.281*****	**0.260*****	1.000

Notes: ***, ** Significant at 1%, 5%, two-tailed respectively.

Table 4.17: Correlation Analysis for the Sub-Sample

	GOV	ACCRL	ZSCORE	AGE	COLLT	SIZE
GOV	1.000					
ACCRL	**-0.333*****	1.000				
ZSCORE	**-0.341*****	**0.281*****	1.000			
AGE	**0.161****	-0.068	**-0.217*****	1.000		
COLLT	-0.039	-0.085	-0.103	**0.236*****	1.000	
SIZE	**0.481*****	**-0.361*****	**-0.389*****	**0.326*****	0.116	1.000

Notes: ***, ** Significant at 1%, 5%, two-tailed respectively.

[46] Refer to Appendix I for the VIF results.

4.3 HYPOTHESIS TESTING

This section presents the multivariate analysis undertaken in order to test the various hypotheses stated in chapter two. Additionally, sensitivity checks are applied to examine the results under differing circumstances. The sensitivity outcomes relative to the original results provide greater credibility to the overall findings of the study. The results for each hypothesis are presented in the following sections.

4.3.1 DEFAULT RISK AND DEBT CONTRACTING

Hypothesis one focuses on the relationship between default risk and debt contracting. The hypothesis is partitioned into three sub-hypotheses. H1a and H1b state that default risk is negatively related to access to quantity and type of debt respectively, while H1c states that default risk is positively related to cost of debt.

The OLS regression results for H1a are presented in Table 4.18.[47] It is clear from the results that QUANT is positively related to ZSCORE. However, a high ZSCORE signals a high possibility of default risk. Therefore, the initial interpretation of the results show that companies with a high default risk access higher quantities of debt which deviates from the theorised relationship between the access to quantities of debt and default risk. A possible explanation for the results is that an increase in quantities of interest bearing debt accessed will ultimately increase the risk of the company, specifically default risk. Another explanation is found in the decomposition of ZSCORE which reveals that the

[47] Refer to Table J.1 in Appendix J for the complete table with industry dummy variables.

default risk variable is predominantly driven by the debt to asset ratio (refer to Table G.9 in Appendix G for more details on the decomposition of ZSCORE). It is therefore expected that an increase in debt levels causes the default risk to increase, thus resulting in the positive relationship between ZSCORE and QUANT.[48]

Table 4.18: Relationship between Default Risk and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**-0.283****	**1.312*****	-0.302	**0.545****	**-0.555*****	**11.753*****
	(-2.007)	(7.781)	(-1.337)	(2.357)	(-3.018)	(9.960)
ZSCORE	**0.065*****	**-0.056*****	**-0.040*****	**0.042*****	**0.054*****	**0.317*****
	(-7.911)	(4.695)	(3.067)	(-3.970)	(-4.814)	(-4.655)
AGE	0.0004	**-0.003*****	0.001	0.001	0.001	0.002
	(0.751)	(-4.335)	(1.111)	(1.135)	(1.066)	(0.320)
COLLT	**0.150*****	0.068	-0.071	0.011	-0.007	0.009
	(4.058)	(1.206)	(-1.189)	(0.229)	(-0.136)	(0.030)
SIZE	**0.072*****	**-0.134*****	**0.083*****	-0.013	**0.064*****	**-0.501*****
	(5.426)	(-7.956)	(3.925)	(-0.657)	(3.414)	(-4.542)
Adjusted R^2	**0.153**	**0.148**	**0.104**	**0.037**	**0.042**	**0.133**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the debt contracting variables and default risk, where ZSCORE is the proxy for default risk. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity. TYPE is defined as follows:
$TYPE_R$ = Access to type of debt where *R* refers to the following debt types:
ASFIN = Asset finance debt divided by total interest bearing debt.
BANK = Bank debt divided by total interest bearing debt.
NONBANK = Non-bank debt divided by total interest bearing debt.
NONINT = Non-intermediated debt divided by total interest bearing debt.

[48] This is a major limitation which is discussed in more details in chapter five.

There are several control variables that are significantly related to QUANT. COLLT and SIZE are positively related to QUANT at the 1% significance level which shows that higher quantities of interest bearing debt are positively linked with high levels of collateral in the form of property, plant and equipment and company size.

The regression results for H1b, which states that access to the different debt types is negatively related to default risk, are presented in Table 4.18. The first debt type, ASFIN, is negatively related to ZSCORE at the 1% significance level. A decrease in ZSCORE results in a rise in ASFIN. Additionally, AGE and SIZE are negatively related to ASFIN at the 1% significance level which indicates that the use of asset secured finance such as lease liabilities and hire purchase decreases with an increase in company age and size.

The regression results relating ZSCORE to BANK are shown in Table 4.18. The coefficient sign for ZSCORE is negative and significant at the 1% level, which implies that a decrease in ZSCORE results in an increase in access to bank debt. Additionally, SIZE is positively related to BANK at the 1% significance level which indicates that access to bank debt is greater for larger companies relative to other companies.

As shown in Table 4.18, a significant positive relationship exists between ZSCORE and both NONBANK and NONINT. However, the results are contrary to the expected negative relationship between ZSCORE and access to the two debt types. A likely explanation could be the association between increased debt levels and default risk. It is a possibility that an increase in the proportion of aggregate amounts of non-bank and non-intermediated debt to interest bearing debt also increases the default risk. Similar results are reported

by Anderson et al. (2004) who state that higher leverage levels increase the possibility of bankruptcy, thereby increasing cost of debt. Additionally, Klock et al (2005) show that higher debt usage increase the probability of the firm not being able to service its debt, which results in an increase in the required rate of return demanded by lenders.

The results for H1c, which states that default risk is positively related to cost of debt, are shown in Table 4.18. The significantly positive relationship between ZSCORE and COST at the 1% significance level leads to the support of H1c. This is an indication that high levels of default risk increase the lenders required rate of return as previously found by Ashbaugh-Skaife et al. (2006) and Bhojraj and Sengupta (2003). Additionally, SIZE is negatively related to COST at the 1% significance level which suggests that an increase in company size results in a lower cost of debt.

Table 4.19: Results for Hypothesis One

Hypothesis		Outcome
H1a: Default risk is negatively related to the quantity of debt accessed.		Not Supported
H1b: Default risk is negatively related to the access to:		
	Asset finance debt.	**Supported**
	Bank debt.	**Supported**
	Non-bank debt.	Not Supported
	Non-intermediated debt.	Not Supported
H1c: Default risk is positively related to cost of debt.		**Supported**

A summary of the outcomes for hypothesis one are reported in Table 4.19. The study does not support H1a which states that default risk is negatively related to access to the quantity of debt. The second sub-hypothesis, H1b, states that default risk is negatively related to the access to the four debt types. The study supports the statements that negatively relate default risk to

access to asset finance and bank debt. However, the study does not support the statements that negatively relate default risk to access to non-bank and non-intermediate debt. Finally, the positive relationship between default risk and cost of debt stated in H1c is supported. This implies that higher levels of default risk increase the cost of debt which is consistent with results from prior studies which find a positive relationship between default risk and cost of debt (Bougheas et al. 2006; Denis and Mihov 2003; Byun 2007; Klock et al. 2005; Anderson et al. 2004).

4.3.2 INFORMATION RISK AND DEBT CONTRACTING

The study investigates the relationship between information risk and debt contracting variables by testing the second hypothesis, which is separated into three sub-hypotheses. H2a states that a negative relationship exists between information risk and access to quantity of debt. H2b states that information risk is positively related to access to asset finance debt and negatively related to access to non-intermediated debt, bank debt and non-bank debt. Finally, H2c states that information risk is positively related to cost of debt.

The regression results for H2a are presented in Table 4.20. The results show that a negative relationship exists between ACCRL and QUANT, but this relationship is not statistically significant.[49] The results for H2b suggest partial support of the theorised relationship between information risk and the access to the different debt types. ACCRL is positively related to ASFIN but the relationship is not statistically significant. However, this is an initial indication

[49] Refer to Table J.2 in Appendix J for the complete table with industry dummy variables.

that high information risk leads to an increase in access to asset finance debt. Furthermore, Table 4.20 shows that ACCRL is negatively related to BANK, and positively related to NONBANK and NONINT. However, the relationships are also not statistically significant therefore the results do not support the expected negative relationship between information risk and access to bank debt, non-bank debt and non-intermediated debt.

Table 4.20: Relationship between Information Risk and Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.261	**0.594***	-0.096	**0.919*****	-0.417	**14.589*****
	(1.095)	(1.936)	(-0.257)	(2.709)	(-1.263)	(8.752)
ACCRL	-0.026	0.072	-0.077	0.002	0.004	**0.824****
	(-0.627)	(1.331)	(-1.174)	(0.031)	(0.066)	(2.035)
AGE	-0.001	-0.002	**0.003***	-0.0001	-0.001	-0.002
	(-0.794)	(-1.294)	(1.768)	(-0.052)	(-0.760)	(-0.380)
COLLT	0.086	**0.257*****	**-0.214****	-0.068	0.025	-0.724
	(1.394)	(3.227)	(-2.200)	(-1.131)	(0.286)	(-1.364)
SIZE	0.026	**-0.089*****	0.028	-0.014	**0.074****	**-0.724*****
	(1.247)	(-3.254)	(0.852)	(-0.488)	(2.538)	(-4.250)
Adjusted R^2	**0.034**	**0.156**	**0.095**	**0.093**	**0.014**	**0.152**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between both debt contracting variables and information risk, where ACCRL is the proxy for information risk. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

The results presented in Table 4.20 show that ACCRL and COST are positively related at the 5% significance level. This indicates that a high information risk leads to a high cost of debt. Additionally, SIZE is negatively

related to COST at the 1% significance level which suggests that cost of debt decreases as size increase.

Table 4.21: Results for Hypothesis Two

Hypothesis	Outcome
H2a: Information risk is negatively related to the quantity of debt accessed.	Not Supported
H2b: Information risk is:	
Positively related to the access to asset finance debt.	Not Supported
Negatively related to the access to bank debt.	Not Supported
Negatively related to the access to non-bank debt.	Not Supported
Negatively related to the access to non-intermediated debt.	Not Supported
H2c: Information risk is positively related to cost of debt.	**Supported**

The summary results for hypothesis two are shown in Table 4.21. It is evident from the results that H2a and H2b are not supported. However, the positive relationship between information risk and asset finance suggest that access to asset finance debt increases in the presence of high information risk. Additionally, the study supports H2c which states that information risk is positively related to cost of debt. The results are in accordance with findings reported by Francis et al. (2005), Lambert et al. (2004), and Gray et al. (2009) which state that information risk increases cost of debt.

4.3.3 CORPORATE GOVERNANCE AND RISK ASSESSMENT

The study tests hypothesis three which posits that corporate governance is related to risk assessment. Hypothesis three is partitioned into two sub-hypotheses. H3a and H3b respectively state that default risk and information

risk are negatively related to higher levels of corporate governance respectively. Table 4.22 presents the regression results for H3a and H3b.

Table 4.22: Relationship between Corporate Governance and both Default Risk and Information Risk

$$ZSCORE_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$ACCRL_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	ZSCORE	ACCRL
Intercept	**6.610*** **	**2.317*** **
	(9.948)	(4.214)
GOV	**-0.071*** **	**-0.031** **
	(-4.134)	(-2.320)
AGE	-0.003	0.002
	(-1.132)	(1.161)
COLLT	-0.297	-0.173
	(-1.580)	(-1.385)
SIZE	**-0.504*** **	**-0.137*** **
	(-7.106)	(-4.269)
Adjusted R^2	0.291	0.156
N	595	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and both default risk and information risk. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Two regression models are estimated to test the relationships between corporate governance and both default risk and information risk. The first model relates ZSCORE to GOV. Table 4.22 shows that GOV is negatively related to ZSCORE at the 5% significance level.[50] This implies that an increase in corporate governance results in a decrease in default risk. Additionally, SIZE is negatively related to ZSCORE at the 1% significance level which indicates that default risk is reduced when the size of the company is increased.

[50] Refer to Table J.3 in Appendix J for the complete table with industry dummy variables.

The second model tests the relationship between ACCRL and GOV. The results in Table 4.22 show that ACCRL is negatively related to GOV at the 5% significance level which indicates that an increase in corporate governance results in a reduction in information risk. Furthermore, ACCRL is negatively related to SIZE at the 1% significance level which suggests that information risk increases when company size decreases.

Table 4.23: Results for Hypothesis Three

Hypothesis	Outcome
H3a: Higher levels of corporate governance are negatively related to default risk.	**Supported**
H3b: Higher levels of corporate governance are negatively related to information risk.	**Supported**

A summary of the outcomes for hypothesis three is reported in Table 4.23. The study supports H3a and H3b which state that higher levels of corporate governance are negatively related to default risk and information risk respectively. Similar results are reported by Bhojraj and Sengupta (2003) and Ashbaugh-Skaife et al. (2006) which find that corporate governance decreases default risk. Furthermore, Strydom et al. (2009) and Kent et al. (2010) find that corporate governance is negatively related to accruals quality.

4.3.4 CORPORATE GOVERNANCE AND DEBT CONTRACTING

The fourth hypothesis focuses on the association between higher levels of corporate governance and the debt contracting variables. Hypothesis four is separated into H4a and H4b which state that higher levels of corporate governance are positively related to access to the quantity and type of debt respectively, via risk reduction. Furthermore, H4c states that higher levels of

corporate governance impact negatively on cost of debt by reducing default and information risk.

The DCM theorises that corporate governance impacts debt contracting via the reduction of default and information risk. Accordingly, 2SLS is used to estimate the relationship between corporate governance and debt contracting via risk assessment by using GOV as an instrumental variable. Furthermore, the results presented in Table 4.22 indicate a significant relationship between corporate governance and risk assessment thereby supporting that GOV is a strong instrument for ZSCORE and ACCRL.

The 2SLS results shown in Table 4.24 are similar to those presented in Tables 4.18 and 4.20 which test the impact of risk assessment on debt contracting.[51] The results show that ZSCORE is positively related to QUANT at the 1% significance level. Additionally, ZSCORE is negatively related to ASFIN at the 5% significance level while it is positively related to NONBANK and NONINT at the 1% and 5% significance levels respectively. ZSCORE is also found to be positively related to COST at the 1% significance level. The results for the relationship between information risk and debt contracting, which are presented in Table 4.24, indicate that ACCRL is positively related to ASFIN and COST at the 10% significance level. However, ACCRL is negatively related to QUANT, BANK, NONBANK and NONINT but the relationships are not significant. These results show that corporate governance, as an exogenous variable, could have an impact on debt contracting.

[51] Refer to Table J.4 in Appendix J for the complete table with industry dummy variables.

Table 4.24: Relationship between Corporate Governance and the Debt Contracting Variables Using 2SLS

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	-0.102	**0.896*** **	0.067	**0.679** **	**-0.641***	**12.495*** **
	(-0.431)	(3.516)	(0.171)	(1.977)	(-1.870)	(7.446)
ZSCORE	**0.068*** **	**-0.055** **	-0.030	**0.040*** **	**0.045** **	**0.408*** **
	(5.007)	(-2.517)	(-1.330)	(2.674)	(2.282)	(3.373)
ACCRL	-0.058	**0.101***	-0.062	-0.026	-0.012	**0.653***
	(-1.456)	(1.841)	(-0.932)	(-0.523)	(-0.214)	(1.686)
AGE	-0.0004	**-0.002***	**0.002***	0.0001	-0.0008	0.0001
	(-0.458)	(-1.904)	(1.716)	(0.013)	(-0.650)	(0.007)
COLLT	**0.105***	**0.242*** **	-0.222	-0.057	0.037	-0.614
	(1.787)	(2.845)	(-2.281)	(-0.943)	(0.440)	(-1.187)
SIZE	**0.058*** **	**-0.116*** **	0.014	0.009	**0.093*** **	**-0.543*** **
	(2.785)	(-4.846)	(0.391)	(0.305)	(3.072)	(-3.267)
Adjusted R^2	**0.144**	**0.197**	**0.098**	**0.124**	**0.036**	**0.190**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents 2SLS regression results for the relationship between corporate governance and debt contracting variables where corporate governance is an instrumental variable. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

The study extends the examination of the DCM by testing whether corporate governance is directly related to debt contracting. The OLS results from estimating the relationship between corporate governance and the debt contracting variables are presented in Table 4.25.[52] The results indicate that GOV is related to QUANT at the 1% significance level. The negative sign for the GOV coefficient indicates that an increase in GOV reduces QUANT, which is opposite to the expected positive relationship between the two variables. A possible explanation is that companies with low levels of corporate governance

[52] Refer to Table J.5 in Appendix J for the complete table with industry dummy variables.

seek higher quantities of debt which influence their risk position. This is consistent with the results of H1a which show that default risk is positively related to access to quantity of debt.

Table 4.25: Relationship between Corporate Governance and the Debt Contracting Variables Using OLS

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.082	**0.965*** **	**-0.466** **	**0.765*** **	-0.263	**13.643*** **
	(0.597)	(6.354)	(-2.192)	(3.485)	(-1.443)	(13.133)
GOV	**-0.011*** **	0.006	**0.013** **	**-0.009***	**-0.010***	**-0.043***
	(-3.165)	(1.216)	(2.348)	(-1.837)	(-1.888)	(-1.696)
AGE	0.0001	**-0.003*** **	0.001	0.0007	0.0007	0.0004
	(0.241)	(-4.043)	(1.294)	(0.911)	(0.833)	(0.115)
COLLT	**0.131*** **	0.084	-0.061	-0.001	-0.023	-0.082
	(3.370)	(1.493)	(-1.012)	(-0.013)	(-0.410)	(-0.285)
SIZE	**0.054*** **	**-0.110*** **	**0.081*** **	-0.022	**0.051** **	**-0.616*** **
	(3.658)	(-6.105)	(3.585)	(-0.989)	(2.349)	(-5.454)
Adjusted R^2	**0.074**	**0.119**	**0.098**	**0.020**	**0.014**	**0.104**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

The regression results for the relationship between access to the four debt types and corporate governance are presented in Table 4.25. The results indicate that a positive relationship exists between GOV and BANK at the 5% significance level. This suggests that an increase in corporate governance leads to higher access to bank debt. However, GOV is not significantly related to ASFIN but it is negatively related to NONBANK or NONINT at the 10%

significance level. A possible explanation for the negative relationship between GOV and both NONBANK and NONINT could be deduced from the results of hypothesis one which show a positive relationship shown between ZSCORE and NONBANK and NONINT at the 1% significance level (see Table 4.18). As corporate governance is negatively related to ZSCORE (see Table 4.22) it could therefore be expected that GOV would have an inverse effect on NONBANK and NONINT.

The regression results for the relationship between GOV and COST are presented in Table 4.25. The results indicate that a negative relationship exists between GOV and COST at the 10% significance level which suggests that higher levels of corporate governance reduce cost of debt. Furthermore, SIZE is also negatively related to COST at the 1% significance level which shows that cost of debt increases when company size is decreased.

The summary of the findings for hypothesis four are reported in Table 4.26. H4a is not supported because GOV is negatively related to QUANT while the DCM expects the relationship to be positive. Additionally, H4b which relates GOV to BANK is supported suggesting that an increase in corporate governance results in an increase in the access to bank debt. However, other statements in H4b that relate GOV to ASFIN, NONBANK and NONINT are not supported. Finally, H4c is supported, which implies that an increase in corporate governance reduces cost of debt. This result is similar to findings reported by Ashbaugh-Skaife et al. (2006), Beekes and Brown (2006), Bhojraj and Sengupta (2003) and Sengupta (1998) which state that an increase in corporate governance reduces cost of debt.

Table 4.26: Results for Hypothesis Four

Hypothesis	Outcome
H4a: Higher levels of corporate governance impact positively on the quantity of debt accessed via the reduction of default and information risk.	Not Supported
H4b: Higher levels of corporate governance impact positively on the following debt types via the reduction of default and information risk:	
Asset finance debt.	Not Supported
Bank debt.	**Supported**
Non-bank debt.	Not Supported
Non-intermediated debt.	Not Supported
H4c: Higher levels of corporate governance impact negatively on cost of debt via the reduction of default and information risk.	**Supported**

4.3.5 CORPORATE GOVERNANCE, DEBT CONTRACTING AND COMPANY SIZE

Hypothesis five focuses on the relationship between corporate governance and the debt contracting variables for different sized companies. The hypothesis is partitioned into three sub-hypotheses. H5a and H5b state that smaller companies that implement higher levels of corporate governance have greater access to the quantity and the type of debt relative to other companies. H5c states that smaller companies that implement higher levels of corporate governance pay a lower cost of debt in comparison to other companies.

The results of the regression models that estimate the relationship between corporate governance and debt contracting for different size companies are reported in Table 4.27. It is evident from the results that the relationships between GOV and the debt contracting variables have not changed due to the inclusion of the interaction terms.[53] For the purpose of examining hypothesis

[53] Refer to Table J.6 in Appendix J for the complete table with industry dummy variables.

five, the study focuses on the debt contracting variables that are significantly related to GOV.

Table 4.27: Relationship between Corporate Governance and the Debt Contracting Variables for the Different Sized Companies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 SIZE_i + \beta_{10} INDUSTRY_i + e_i$$

$$TYPE_{Ri} = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 SIZE_i + \beta_{10} INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 SIZE_i + \beta_{10} INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.471*** **	0.183	0.206	**0.525*** **	0.086	**9.437*** **
	(5.316)	(1.429)	(1.520)	(3.476)	(0.705)	(17.342)
GOV	**-0.007***	-0.003	**0.016** **	-0.004	**-0.009***	**-0.111*** **
	(-1.760)	(-0.465)	(2.451)	(-0.718)	(-1.608)	(-4.019)
SML	0.032	-0.070	-0.073	**0.192** **	-0.049	-0.349
	(0.527)	(-0.792)	(-0.780)	(2.007)	(-0.576)	(-0.739)
LRG	0.006	-0.204	0.005	0.080	0.120	**-2.176*** **
	(0.052)	(-1.328)	(0.029)	(0.500)	(0.818)	(-3.097)
GOV_S	-0.013	**0.035*** **	**-0.022***	-0.020	0.007	**0.174** **
	(-1.405)	(2.722)	(-1.635)	(-1.502)	(0.545)	(2.175)
GOV_L	0.006	0.005	0.005	-0.009	-0.001	**0.134** **
	(0.588)	(0.370)	(0.307)	(-0.627)	(-0.059)	(2.076)
AGE	0.0003	**-0.003*** **	0.001	0.001	0.001	-0.001
	(0.420)	(-3.048)	(1.326)	(0.885)	(0.911)	(-0.195)
COLLT	0.143	0.074	-0.049	-0.008	-0.017	-0.089
	(3.642)	(1.302)	(-0.814)	(-0.161)	(-0.317)	(-0.309)
Adjusted R^2	**0.066**	**0.127**	**0.114**	**0.023**	**0.010**	**0.107**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and both the access to debt and cost of debt for different sized companies. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity. GOV_S is an interaction term which is measured by multiplying GOV by SML. SML equals one if the company is in the lower quintile and zero otherwise. GOV_L is an interaction term which is measured by multiplying GOV by LRG. LRG equals one if the company is in the upper quintile and zero otherwise.

The results in Table 4.27 show that QUANT is negatively related to GOV but it is not related to GOV_S. Additionally, although ASFIN is positively related to GOV_S at the 1% significance level, it is however not

related to GOV which suggests that small firms do not access more asset finance in the presence of higher levels of corporate governance. The association between corporate governance and non-intermediated debt results show that GOV and NONINT are negatively related at the 10% significance level but NONINT is not related to GOV_S. Finally, GOV and COST continue to maintain a significantly negative relationship in the presence of the governance-size interaction terms. The impact of both GOV_S and GOV_L on COST is positive and significant at the 5% significance level. This result is opposite to the expected negative relationship between COST and GOV_S which indicates that small companies do not benefit from implementing higher levels of corporate governance relative to larger companies. Nonetheless, LRG is negatively related to COST at the 1% significance level which suggests that larger companies pay a lower cost of debt.

The summary of the outcomes relating to hypothesis five are presented in Table 4.28. H5a is not supported because the relationship between GOV_S to QUANT is not statistically significant. H5b is not supported because GOV is not related to ASFIN and NONBANK. Although a significantly positive relationship exists between GOV and BANK, the impact of GOV_S on BANK is negative which is contrary to the expected relationship between the two variables. Finally, the statement in H5c is not supported due to the significantly positive relationship between GOV_S and COST which is opposite to the expected negative relationship between the variables.

Table 4.28: Results for Hypothesis Five

Hypothesis		Outcome
H5a:	Small companies that implement higher levels of corporate governance access more interest bearing debt.	Not Supported
H5b:	Small companies that implement higher levels of corporate governance access more of the following debt types:	
	Asset finance debt.	Not Supported
	Bank debt.	Not Supported
	Non-bank debt.	Not Supported
	Non-intermediated debt.	Not Supported
H5c:	Small companies that implement higher levels of corporate governance pay a lower cost of debt.	Not Supported

In summary, the results indicate that default risk reduces access to bank debt and asset finance debt, and increases cost of debt. However, information risk is shown to only increase cost of debt. Furthermore, risk assessment and corporate governance are negatively related, which suggest that an increase in the level of corporate governance results in a reduction in default risk and information risk. The results also indicate that an increase in corporate governance results in an increase in bank debt and a decrease in cost of debt. Finally, the results show that small companies do not access more quantities of debt or types of debt when they implement higher levels of corporate governance. Moreover, cost of debt for small companies is not reduced due to implementing higher levels of corporate governance. The next section focuses on applying sensitivity analysis to the results in order to assess whether the findings in the current section are robust under varying conditions.

4.4 SENSITIVITY ANALYSIS

This section assesses the robustness of the hypothesis tests. Alternate variables for debt access, default risk, information risk, corporate governance and company size are used in order to test the sensitivity of the original results.

Moreover, the alternate variables are used in the regression estimation to test the five hypotheses.

4.4.1 ALTERNATE DEBT ACCESS MEASURES

The study uses alternate measures to represent access to quantity and types of debt. The original quantity of debt accessed variable is measured as total interest bearing debt divided by total liabilities. The four variables that represent access to debt types are measured as the quantity of debt in each debt type divided by total interest bearing debt. The original measurements of access to quantity and type of debt are consistent with proxies used by past research (González et al. 2007; Bougheas et al. 2006; Denis and Mihov 2003; Cantillo and Wright 2000). An alternative approach is to divide total interest bearing debt and the quantities of debt in each debt type by total assets. This approach indicates the degree of financing of assets that is sourced from the different types of interest bearing debt. Section K.1 in Appendix K provides the calculation for the access to debt variables.

The results for the regression estimations which use alternate access to quantity and type measures are reported in Table K.1 to K.5 in Section K.1 of Appendix K. The results, in light of the new measurements, show similarities with the original results for the access to quantity of debt and cost of debt whilst some difference are noted for access to the different types of debt. Most importantly, the results support the original findings that default risk and information risk increase cost of debt while higher levels of corporate governance reduces cost of debt.

4.4.2 ALTERNATE DEFAULT RISK VARIABLE

Hypothesis one states that default risk, represented by ZSCORE, is related to the debt contracting variables. The results reported in Table 4.18 suggest that ZSCORE is negatively related to ASFIN and BANK whilst it is positively related to COST. The results are further assessed by introducing an alternate measure to proxy for default risk. The alternate measure is optimised to discriminate between failed and non-failed Australian companies thereby it overcomes any potential problems associated with using the financial ratios suggested by Altman (1968, 1983).

The study uses ZSCORE2 as an alternate default risk variable to test the relationship between default risk and debt contracting.[54] Unlike the original ZSCORE, the alternate variable is estimated by applying parameters from stepwise MLD analysis of ten financial ratios. The inclusion of ten ratios rather than the original five ratios improves the selection of the underlying drivers of Z-score. The ratios are return on asset, debt to equity, long-term debt to equity, net profit margin, debt to asset, fixed asset turnover, total asset turnover, return on equity, operating profit margin and current ratio. The stepwise MLD analysis selected debt to equity, net profit margin, return on asset and total asset turnover as the four ratios that are included in the ZSCORE2 estimation. Similar to the original default risk variable, ZSCORE2 is multiplied by negative one so that a high Z-score indicates a high default risk. A decomposition of ZSCORE2 shows that it is mainly driven by debt to equity and total asset turnover. Companies with a greater debt to equity will have a higher Z-score

[54] Refer to Tables K.6 and K.7 in Section K.2 of Appendix K for a detailed overview of the estimation and decomposition of ZSCORE2.

while companies with high levels of total asset turnover will receive a lower Z-score.

The results presented in Table 4.29 show a similar pattern to the results obtained by using ZSCORE.[55] The relationship between ZSCORE2 and QUANT, NONBANK and NONINT is positive and significant at the 1% significance level. The results indicate that access to aggregate interest bearing debt and access to non-bank and non-intermediated debt are positively influenced by default risk, which reflects the underlying premise that increased debt increases the riskiness of the company. However, BANK is negatively related to ZSCORE2 at the 1% significance level, which suggests that high levels of default risk reduce the access to bank debt. Additionally, ZSCORE2 is positively related to COST at the 1% significance level which indicates that high default risk increases the cost of debt. The sensitivity analysis results that are obtained by using ZSCORE2 confirm the original results reported in Table 4.18. These results suggest that default risk is negatively related to the access to bank debt whilst it is positively related to cost of debt.[56]

[55] Refer to Table K.8 Section K.2 of in Appendix K for the complete table with industry dummy variables.
[56] Section K.2 of Appendix K introduces times interest earned as an additional measure for default risk. Refer to Tables K.9 for regression results that include times interest earned as an alternate variable for default risk.

Table 4.29: Relationship between Default risk (ZSCORE2) and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 ZSCORE\,2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE\,2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 ZSCORE\,2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	-0.013	0.957	-0.273	**0.629*** **	**-0.313***	**12.842*** **
	(-0.0940	(6.124)	(-1.318)	(2.794)	(-1.673)	(12.186)
ZSCORE2	**0.017*** **	-0.006	**-0.027*** **	**0.019*** **	**0.013*** **	**0.103*** **
	(4.524)	(-0.953)	(-4.151)	(4.015)	(2.680)	(3.280)
AGE	0.0003	**-0.003*** **	0.001	0.001	0.001	0.002
	(0.634)	(-4.095)	(0.899)	(1.185)	(1.025)	(0.412)
COLLT	**0.149*** **	0.080	-0.089	0.019	-0.010	0.026
	(3.911)	(1.419)	(-1.473)	(0.389)	(-0.178)	(0.093)
SIZE	**0.057*** **	**-0.104*** **	**0.067*** **	-0.011	**0.049** **	**-0.546*** **
	(4.053)	(-6.084)	(3.184)	(-0.537)	(2.447)	(-5.119)
Adjusted R^2	**0.088**	**0.117**	**0.118**	**0.035**	**0.016**	**0.117**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the debt contracting variables and the default risk, where ZSCORE2 is the proxy for default risk. ZSCORE2 refers to the default risk estimated by using stepwise MLD. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

4.4.3 ALTERNATE INFORMATION RISK VARIABLE

Hypothesis two states that information risk is related to the debt contracting variables. The results presented in Table 4.20 indicate that ACCRL is positively related to COST. The study further examines the relationship between debt contracting and information risk by partitioning the latter into innate and discretionary components (Francis et al. 2005, 2004; Dechow and

Dichev 2002; Gray et al. 2009).[57] The discretionary portion of information risk results from the accounting choices carried out by management which are independent of the business structure or the operating environment of the firm (Gray et al. 2009; Francis et al. 2005). Managers can exercise judgment with respect to current recognition of future expenses and revenues thereby distorting the quality of reported accounting information (DeFond and Park 1997; Subramanyam 1996). Furthermore, managers' ability to select and disclose accounting information could lead to variability in the level and precision of that information.

The innate component of information risk consists of the intrinsic features of the company's operating and economic environment (Francis et al. 2004). Firm-specific factors such as the variability in sales and cash flows, company size, the length of the operating cycle and the incidence of losses can influence the quality of accruals. Dechow and Dechiv (2002) and Francis et al. (2005) argue that smaller companies and companies with greater variability of cash flows, a longer operating cycle, and greater incidences of losses, possess poorer accruals quality. As a result, innate firm factors, especially for small companies, could negatively influence the level of and precision of the accounting information disclosed to stakeholders, which increases the underlying information risk.

The innate and discretionary components of information risk are expected to have a differential impact on debt contracting. Discretionary information risk can lead to an increase in agency costs (Demirkan and Platt 2009) which could have an adverse effect on the quantity, type and cost of debt.

[57] Refer to Tables K.10 to K.13 in Section K.3 of Appendix K for detailed overview of the innate and discretionary components of accruals quality.

However, prior studies show that an innate information risk has a greater impact on the pricing of debt contracts relative to discretionary information risk. The DCM adopts a similar position to prior studies by proposing that the firm's intrinsic factors and operating environment are expected to have more influence on debt contracting in comparison to discretionary information risk.

The study decomposes information risk into innate and discretionary components in accordance with prior studies (Dechow and Dichev 2002; Francis et al. 2004, 2005). The innate dimension of information risk comprises a number of factors that influence the operational and economical environment of the business (Gray et al. 2009) which in turn impact on the quality of accruals. The five factors used by Dechow and Dichev (2002) and Francis et al. (2005) are company size, standard deviation of cash flow from operations, standard deviation of sales revenue, length of operating cycle and loss in earnings. The current study follows the approach used by Francis et al. (2005) to regresses ACCRL on the five innate company factors. The predicted value for the regression provides an estimate of the innate component of accruals quality. However, the residual of the regression represents an estimate of the discretionary component of accruals quality. The following is a model of the regression estimate that includes ACCRL and the five innate accruals quality factors.

$$ACCRL_i = \beta_0 + \beta_1 SIZE_i + \beta_2 \sigma(CFO)_i + \beta_3 \sigma(SALES)_i + \beta_4 OPCYCLE_i + \beta_5 LOSS_i + \varepsilon_i$$

(4.1)

Where:

$SIZE_i$ = Log of total assets.

$\sigma(CFO)_i$ = The standard deviation of cash flow from operations for firm i. Cash flow from operations is calculated over a period of 5 years.

$\sigma(SALE)_i$ = The standard deviation of sales revenue for firm i. Sales revenue is calculated over a period of 5 years.

$OPCYCLE_i$ = Log of the sum of days accounts receivable and days inventory for firm i.

$LOSS_i$ = One if firm i reports negative earnings after tax and zero otherwise.

The predicted values from (4.1) produce an estimate of the innate component of the ith firm's accruals quality, INACCRL, as represented in the following model:

$$INACCRL_i = \hat{\beta}_0 + \hat{\beta}_1 SIZE_i + \hat{\beta}_2 \sigma(CFO)_i + \hat{\beta}_3 \sigma(SALES)_i + \hat{\beta}_4 OPCYCLE_i + \hat{\beta}_5 LOSS_i$$

(4.2)

The residual from (4.2) is an estimate of the discretionary component of the ith firm's accruals quality DSACCRL as follows:

$$DSACCRL_{i,t} = \hat{\varepsilon}_i$$

The summary statistics for INACCRL and DSACCRL are presented in Tables K.10 - K.13 of Section K.3 in Appendix K. The tables show that the mean for INACCRL is 0.45 while the mean for DSACCRL is -0.0000001. The ANOVA results indicate that the INACCRL means for the three size groups are

significantly different from each other. This result is substantiated by Tukey's post hoc test which shows that the means for INACRRL across small, medium and large companies are statistically different from each other. However, ANOVA results show that the means for DSACCRL across the three size groups are not statistically different from each other.

To further investigate the impact of information risk on debt contracting, the study replaces ACCRL with the two components of information: INACCRL and DSACCRL. As shown in Table 4.30, INACCRL is negatively related to QUANT at the 5% significance level which indicates that an increase in the innate factors of information risk leads to a decrease in the access to quantity of debt.[58] Furthermore, INACCRL is positively related to ASFIN and negatively related to NONINT at the 1% and 10% significance level respectively which suggests companies with a higher innate information risk will access more asset finance debt and less non-intermediated debt. Additionally, INACCRL is positively related to COST at the 5% significance level which indicates that an increase in the innate component of the information risk increases cost of debt.

[58] Refer to Table K.14 and K.15 in Section K.3 of Appendix K for the complete table with industry dummy variables.

Table 4.30: Relationship between the Innate Component of Information Risk and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 INACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 INACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 INACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.539*** **	**-0.256*** **	0.170	**0.797*** **	0.289	**7.878*** **
	(4.086)	(-3.576)	(0.808)	(3.528)	(1.575)	(9.001)
INACCRL	**-0.192** **	**0.346*** **	-0.177	0.013	**-0.181** *	**2.399** **
	(-2.428)	(3.227)	(-1.408)	(0.111)	(-1.646)	(2.474)
AGE	-0.001	**-0.002** **	**0.002** *	-0.0002	-0.0002	-0.007
	(-0.884)	(-2.258)	(1.767)	(-0.301)	(-0.172)	(-1.192)
COLLT	0.091	**0.260*** **	**-0.225** **	-0.073	0.039	-0.581
	(1.488)	(3.205)	(-2.304)	(-1.184)	(0.453)	(-1.036)
Adjusted R^2	**0.057**	**0.132**	**0.091**	**0.100**	**-0.004**	**0.087**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the innate component of information risk, INACCRL, and the debt contracting variables and information risk. INACCRL and SIZE are highly correlated (ρ = -0.715) at the 1% significance level and hence the presence of SIZE in the regression estimation caused INACCRL to be insignificant. The study removes SIZE whenever INACCRL is present in the regression model. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

The study also focuses on the relationship between DSACCRL and the debt contracting variables. The results presented in Table 4.31 show that DSACCRL is positively related to COST at the 5% significance level. These results indicate that the innate and discretionary components of information risk are priced by the market in terms of the cost of debt charged.[59]

[59] Section K.3 of Appendix K introduces the bid-ask spread and abnormal accruals as alternate variables for information risk. Refer to Table K.16 to K.18 for regression results that include two alternate variables for information risk.

Table 4.31: Relationship between the Discretionary Component of Information Risk and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 DSACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 DSACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 DSACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.150	**0.771*** **	-0.206	**0.920*** **	**-0.485***	**15.511*** **
	(0.685)	(2.727)	(-0.598)	(2.945)	(-1.633)	(10.884)
DSACCRL	0.010	0.058	-0.077	0.008	0.011	**1.027** **
	(0.208)	(0.975)	(-1.067)	(0.145)	(0.178)	(2.491)
AGE	-0.001	-0.002	**0.003***	-0.0001	-0.001	-0.003
	(-0.848)	(-1.298)	(1.758)	(-0.114)	(-0.715)	(-0.573)
COLLT	**0.104***	**0.239*** **	**-0.222** **	-0.075	0.057	-0.667
	(1.670)	(2.978)	(-2.262)	(-1.225)	(0.673)	(-1.283)
SIZE	**0.035***	**-0.104*** **	0.038	-0.014	**0.079*** **	**-0.807*** **
	(1.772)	(-4.054)	(1.226)	(-0.496)	(2.946)	(-5.123)
Adjusted R^2	**0.039**	**0.158**	**0.094**	**0.097**	**0.021**	**0.158**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relation between the discretionary component of information risk, DSACCRL, and the debt contracting variables. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

4.4.4 ALTERNATE CORPORATE GOVERNANCE VARIABLE

Hypothesis three states that higher levels of corporate governance are associated with both default risk and information risk. The earlier regression results presented in Table 4.22 indicate that default and information risks are negatively related to higher levels of corporate governance. The study checks the robustness of the results presented in Table 4.22 by substituting GOV2 and ZSCORE2 for GOV and ZSCORE respectively.

The alternate corporate governance variable, GOV2, is calculated by combining the fourteen individual corporate governance variables into a single score. Each corporate governance variable is scaled between zero and ten where ten represents the highest score a company can achieve. To compute the score of zero to ten, the value of each individual corporate governance variable is divided by the highest value for that variable and then the result is multiplied by ten. The scores from each of the fourteen variables are then added together to produce GOV2 which ranges from zero to 140, where 140 is the highest total score a company can achieve.

The variable GOV2 is selected as an alternative measure for corporate governance because it differs from GOV in two respects. Firstly, the scale used to calculate GOV2 allows for a greater variability in the data. GOV limits the maximum score to 14 whereas GOV2 represents a score which can reach 140, thereby reflecting the heterogeneity in the sampled companies. Secondly, GOV2 incorporates all governance information in the score whereas GOV discards corporate governance information that is below the median. GOV2 is used in place of GOV to assess the impact of corporate governance on default and information risk.

The results for the regression estimations that are used in testing hypothesis three are presented in Table 4.32. The relationship between the original ZSCORE variable and GOV2 is negative and significant at the 5% significance level. The results confirm the original results which suggest that higher levels of corporate governance reduce default risk. Similar results are obtained when using ZSCORE2 as an alternate default risk variable. GOV is

negatively related to ZSCORE2 at the 5% significance level.[60] GOV2 is also negatively related to ZSCORE2, however the relationship is not statistically significant.

Table 4.32: Relationship between Default Risk and Corporate Governance

$$ZSCORE_{R,i} = \beta_1 + \beta_2 GOV_{R,i} + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Default Risk		
Variable	ZSCORE	ZSCORE2	ZSCORE2
Intercept	**6.833*** **	**11.636*** **	**11.106*** **
	(10.098)	(9.511)	(9.304)
GOV			**-0.092** **
			(-2.447)
GOV2	**-0.008** **	-0.006	
	(-2.480)	(-0.876)	
AGE	-0.003	-0.009	**-0.009** *
	(-0.965)	(-1.520)	(-1.626)
COLLT	**-0.304** *	**-1.113** **	**-1.102** **
	(-1.604)	(-2.546)	(-2.521)
SIZE	**-0.555*** **	**-1.503*** **	**-1.386*** **
	(-7.569)	(-9.970)	(-9.743)
Adjusted R^2	**0.278**	**0.355**	**0.360**
N	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relation between both default risk and information risk and corporate governance. GOV_R refers to GOV and GOV2. $ZSCORE_R$ refers to ZSCORE and ZSCORE2. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

As a further examination, the study investigates whether higher levels of corporate governance impact on the innate and discretionary components of information risk. The results presented in Table 4.33 indicate that GOV is negatively related to INACCRL and DSACCRL at the 1% significance level

[60] Refer to Table K.19 in section K.4 of Appendix K for the complete table with industry dummy variables.

respectively.[61] While the two components of information risk are significantly related to corporate governance, the innate component is noted to have a stronger relationship with corporate governance relative to the discretionary component. Similar results are shown when GOV2 is used as an alternate for GOV. The two components of information risks are negatively related to GOV2. Additionally, ACCRL is also negatively related to GOV2 which supports the findings in Table 4.22. This suggests that higher levels of corporate governance reduce information risk.

Table 4.33: Relationship between the Innate and Discretionary Components of Information Risk and Corporate Governance

$$ACCRL_i = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$INACCRL_i = \beta_1 + \beta_2 GOV_{R,i} + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$DSACCRL_i = \beta_1 + \beta_2 GOV_{R,i} + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

	ACCRL	INACCRL	INACCRL	DSACCRL	DSACCRL
Intercept	**1.237*****	**0.601*****	**0.607*****	0.540	**0.677*****
	(4.859)	(4.817)	(4.818)	(1.071)	(3.020)
GOV		**-0.019*****		**-0.037*****	
		(-3.814)		(-2.778)	
GOV2	**-0.007*****		**-0.003*****		**-0.004*****
	(-4.007)		(-3.757)		(-2.718)
AGE	0.0005	**-0.002*****	**-0.002*****	0.002	**0.003*****
	(0.287)	(-2.935)	(-2.638)	(1.496)	(1.815)
COLLT	-0.150	-0.059	-0.049	-0.147	-0.123
	(-1.368)	(-1.087)	(-0.908)	(-1.257)	(-1.275)
SIZE				0.029	
				(0.857)	
Adjusted R^2	**0.067**	**0.157**	**0.155**	**0.074**	**0.046**
N	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the innate and discretionary components of information risk and corporate governance. SIZE is only included in the regressions that exclude GOV2 and INACCRL due to the high correlation between SIZE and GOV2 and INACCRL. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

[61] Refer to Table K.20 in Section K.4 of Appendix K for the complete table with industry dummy variables.

Hypothesis four focuses on the impact of higher levels of corporate governance on the debt contracting variables. The results presented in Table 4.25 suggest that higher levels of corporate governance are positively related to bank debt and negatively related to cost of debt. As a robustness test, the relationship between corporate governance and debt contracting is further analysed by introducing GOV2 as an alternate proxy for corporate governance. The results in Table 4.35 suggest that GOV2 is negatively related to QUANT and NONBANK at the 5% and 10% significance levels respectively. [62] A possible explanation for the negative relationship between corporate governance and the total quantity of debt accessed and non-bank debt could be that companies with high debt levels have a greater possibility of default and therefore will have a lower governance score (the association between higher levels of corporate governance and default risk was established in earlier results). Additionally, the results show that GOV2 is positively related to BANK and negatively related to COST. However, the relationships are not statistically significant.

[62] Refer to Table K.21 in Section K.4 of Appendix K for the complete table with industry dummy variables.

Table 4.35: Relationship between Corporate Governance (GOV2) and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 GOV\ 2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV\ 2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV\ 2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.105	**0.983*** **	**-0.534** **	**0.765*** **	-0.214	**13.783*** **
	(0.753)	(6.349)	(-2.479)	(3.426)	(-1.128)	(12.891)
GOV2	**-0.001** **	0.001	0.001	**-0.001***	-0.001	-0.005
	(-2.218)	(1.412)	(0.977)	(-1.605)	(-0.873)	(-0.959)
AGE	0.000	**-0.003*** **	0.001	0.001	0.001	0.001
	(0.367)	(-4.112)	(1.210)	(1.003)	(0.904)	(0.189)
COLLT	**0.130*** **	0.085	-0.059	-0.001	-0.024	-0.087
	(3.327)	(1.508)	(-0.984)	(-0.029)	(-0.431)	(-0.300)
SIZE	**0.048*** **	**-0.114*** **	**0.097*** **	-0.022	**0.040***	**-0.648*** **
	(3.180)	(-6.001)	(4.128)	(-0.966)	(1.745)	(-5.270)
Adjusted R^2	**0.066**	**0.120**	**0.091**	**0.018**	**0.007**	**0.120**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables where GOV2 is the proxy for corporate governance. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

A closer examination of the results suggests that the presence of company size as a control variable is contributing to the insignificance of the corporate governance variable. A correlation analysis indicates that GOV2 and SIZE have a correlation of 0.58 which is significant at the 1% significance level as shown in table 4.36. This high correlation between GOV2 and SIZE suggests a possible multicollinearity between the two variables. Consequently, the presence of SIZE in the regression is causing GOV2 to become statistically insignificant. The method used to calculate GOV2 could provide a possible explanation as to why it correlates highly with size. GOV2, which ranges from

zero to 140, allows for a high variability in the data. As a result, the alternate corporate governance variable implicitly captures the heterogeneity in companies corresponding to corporate governance and therefore it could act as a proxy for size. Consequently, SIZE is removed from the analysis, in order to test whether GOV2 contributes to explaining the variability in the debt contracting variables.

Table 4.36: Correlation Analysis for the Two Corporate Governance Variables and Company Size

	GOV2	SIZE
GOV2	1.000	
SIZE	**0.575*****	1.000

Notes:
*** Significant at 1%, two-tailed.

The regression results that exclude company size from the analysis are presented in Table 4.37.[63] The results suggest that GOV2 is negatively related to ASFIN and NONBANK at the 10% and 1% significance levels respectively. The negative relationship between GOV2 and ASFIN could be caused by the initial negative relationship between SIZE and ASFIN, where large companies access less asset finance debt relative to other companies. Furthermore, since GOV2 captures the size effect, an increase in corporate governance could result in a decrease in asset finance debt. The results for the relationship between corporate governance and access to bank debt show that GOV2 is positively related to BANK at the 1% significance level. The positive relationship between GOV2 and BANK confirms the original test results which indicate that an increase in corporate governance results in an increase in access to bank

[63] Refer to Table K.22 in Section K.4 of Appendix K for the complete table with industry dummy variables.

debt. Finally, GOV2 is negatively related to COST at the 1% significance level. The negative relationship between corporate governance and cost of debt confirms the earlier results which suggest that an increase in the level of corporate governance lowers cost of debt.

Table 4.37: Relationship between Corporate Governance (GOV2) and the Debt Contracting Variables (Without size)

$$QUANT_i = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.460*** **	**0.142** **	0.179	**0.599*** **	0.080	**8.989*** **
	(5.483)	(2.077)	(1.371)	(5.330)	(0.838)	(14.555)
GOV2	-0.0003	**-0.001***	**0.003*** **	**-0.002*** **	0.0001	**-0.020*** **
	(-0.542)	(-1.778)	(3.873)	(-2.719)	(0.125)	(-5.368)
AGE	0.001	**-0.004*** **	**0.002** **	0.001	0.001	-0.004
	(0.996)	(-5.240)	(2.023)	(0.752)	(1.257)	(-1.124)
COLLT	**0.146*** **	0.048	-0.028	-0.009	-0.011	-0.297
	(3.727)	(0.820)	(-0.463)	(-0.166)	(-0.199)	(-1.011)
Adjusted R^2	**0.052**	**0.081**	**0.066**	**0.018**	**0.003**	**0.062**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables excluding the size control variable. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

4.4.5 ALTERNATE COMPANY SIZE VARIABLE

Hypothesis five focuses on the relationship between higher levels of corporate governance and the debt contracting variables for different sized companies. The earlier analysis included two size-governance interaction terms to show the impact of corporate governance on debt contracting outcomes for

large and small companies. The results of the earlier analysis, as shown in Table 4.27, suggest that small companies do not realise any debt contracting benefits from the presence of higher levels of corporate governance relative to larger companies. The robustness of the results reported in Table 4.27 is tested by introducing alternative dummy variables for the company size.

Table 4.38: Relationship between Corporate Governance and the Debt Contracting Variables for Small and Large Companies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 AGE_i + \beta_6 COLLT_i + \beta_7 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 AGE_i + \beta_6 COLLT_i + \beta_7 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 AGE_i + \beta_6 COLLT_i + \beta_7 INDUSTRY_i + e_i$$

	Quantity Accessed	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.476*** **	**0.130***	**0.225***	**0.566*** **	0.079	**8.978*** **
	(5.556)	(1.736)	(1.719)	(3.843)	(0.672)	(16.725)
GOV	**-0.009** **	0.004	**0.012** **	**-0.009***	**-0.008***	**-0.059** **
	(-2.547)	(0.860)	(2.361)	(-1.883)	(-1.737)	(-2.357)
SML	-0.039	**0.140*** **	**-0.202*** **	**0.072***	-0.009	**0.738*** **
	(-1.329)	(2.842)	(-4.496)	(1.671)	(-0.231)	(2.741)
LRG	**0.072** **	**-0.166*** **	0.063	-0.006	**0.108*** **	**-0.857*** **
	(2.394)	(-5.196)	(1.383)	(-0.145)	(2.620)	(-3.977)
AGE	0.0003	**-0.003*** **	0.001	0.001	0.001	-0.001
	(0.498)	(-4.210)	(1.396)	(0.894)	(0.894)	(-0.158)
COLLT	**0.140*** **	0.071	-0.052	-0.003	-0.017	-0.162
	(3.589)	91.266)	(-0.868)	(-0.066)	(-0.311)	(-0.567)
Adjusted R^2	**0.064**	**0.119**	**0.112**	**0.022**	**0.013**	**0.099**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables for different sized companies. The regressions include unreported industry dummy variables. SML is a dummy variable that equals one if the company is classed as small and zero otherwise. LRG is a dummy variable that equals one if a company is classed as large and zero otherwise. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

The analysis is re-run with the variables SML and LRG introduced to represent small and large companies as shown in Table 4.38.[64] The variable SML is a dummy variable which equals one if the company falls within the lower size quintile and zero otherwise (companies are ranked into quintiles based on total assets). Similarly, the variable LRG equals one if the company falls within the upper size quintile and zero otherwise.

The results presented in Table 4.38 confirm the results reported in Table 4.27, which show that small companies do not experience debt contracting benefits when higher levels of corporate governance are implemented. Although GOV is positively related to BANK at the 5% significance level, the coefficient for SML is opposite from what is expected. Additionally, the result for the relationship between higher levels of corporate governance and cost of debt show the coefficient for SML is positive and significant at the 1% significance level. This suggests that smaller companies do not experience an increase in the access to quantities and types of debt or a decrease in cost of debt in the presence of higher levels of corporate governance.

An alternate size categorization is also explored to test the robustness of the relationship between corporate governance and debt contracting for different sized companies. The new size classification centres on the Top 300 companies listed on S&P All Ordinaries index in Australia. The Top 300 companies are mandated to implement specific corporate governance practices such as establishing an audit committee which complies with PGCG (Australian Securities Exchange (ASX) Corporate Governance Council 2007b). As a result, the Top 300 companies are expected to be larger than other companies

[64] Refer to Table K.23 in Section K.5 Appendix K for the complete table with industry dummy variables.

and are perceived to have a higher level of corporate governance structure relative to other companies. A dummy variable, TOP300, is used to proxy for the alternate size categorization. TOP300 equals one if the company is in the Top 300 and zero otherwise.

$$TOP\ 300_i = \begin{cases} 1 \text{ if firm i belongs to Top 300 companies} \\ 0 \text{ otherwise} \end{cases} \tag{4.2}$$

The results for the regression estimation with the new size categorisation are presented in Table 4.39.[65] GOV remains positively related to BANK and negatively related to COST at 1% significance level respectively. Additionally, in the regression estimation for GOV and BANK, the coefficient for TOP300 is positive and significant at the 1% significance level. This suggests that companies in the Top 300 access higher quantities of bank debt in the presence of higher levels of corporate governance. The regression for the impact of GOV on COST shows the coefficient for TOP300 is negative and significant at the 1% significance level. This suggests that companies in the Top 300 pay a lower cost of debt, relative to other companies, in the presence of higher levels of corporate governance.

[65] Refer to Table K.24 in Section K.5 of Appendix K for the complete table with industry dummy variables.

Table 4.39: Relationship between Corporate Governance and the Debt Contracting Variables for the Top300 Companies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 TOP300_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 TOP300_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 TOP300_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.470*****	**0.169*****	0.120	**0.600*****	0.111	**9.156*****
	(5.627)	(2.579)	(0.926)	(5.337)	(1.167)	(15.226)
GOV	**-0.007****	-0.003	**0.020*****	**-0.012*****	-0.005	**-0.101*****
	(-2.080)	(-0.582)	(3.941)	(-2.774)	(-0.982)	(-4.672)
AGE	0.0004	**0.003*****	**0.002***	0.0004	0.001	-0.003
	(0.678)	(-4.751)	(1.681)	(0.599)	(1.248)	(-0.808)
COLLT	**0.146*****	0.053	-0.038	-0.008	-0.007	-0.264
	(3.766)	(0.933)	(-0.635)	(-0.154)	(-0.126)	(-0.898)
TOP300	**0.069****	**0.154*****	**0.117*****	0.007	0.029	**-0.632*****
	(2.303)	(-4.616)	(2.550)	(0.174)	(0.742)	(-3.009)
Adjusted R^2	**0.061**	**0.098**	**0.088**	**0.018**	**0.004**	**0.074**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and the debt contracting variables for different sized companies. The Top300 refers to a dummy variable which equals one if the company is in the top 300 and zero otherwise. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

A final examination of the relationship between corporate governance and debt contracting for different sized companies is conducted for a sub-sample of small companies. Companies that are ranked in the lower size quintile are grouped together and are tested independently of other companies. The purpose behind this sensitivity analysis is to investigate whether variations in corporate governance within small companies have an impact on debt contracting for those companies. Specifically, the question is whether smaller companies with higher levels of corporate governance experience debt contracting impacts in terms of greater access to debt and lower cost of debt.

The results of the analysis for the sub-sample of small companies are presented in Table 4.40.[66] The results indicate that corporate governance lowers total quantity of debt accessed and access to non-bank debt while increasing access to asset finance debt. A possible explanation is that an increase in QUANT and NONINT could signal an increase in risk which therefore indicates a reduction in GOV. A likely explanation for the positive relationship between GOV and ASFIN is that smaller companies tend to favour asset finance debt over other debt types (refer to Table 4.5). Finally, the results show that GOV is not statistically related to COST which is dissimilar to the original findings reported in Table 4.27.

The various examinations of the impact of corporate governance on debt contracting for different sized companies yield similar results, particularly for smaller companies. The descriptive analysis results presented in Tables 4.10 and 4.11 show that smaller companies support a weaker governance structure relative to other companies. The mean for GOV for small companies is 5.41 while the mean for GOV for all companies is 8.19 and for large companies is 10.82. Given the low level of governance for even the best small firms, it is not surprising that the results reveal that smaller companies with strong governance are still unable to realise debt contracting benefits relative to other companies.

[66] Refer to Table K.25 in Section K.5 of Appendix K for the complete table with industry dummy variables.

Table 4.40: Relationship between Corporate Governance and the Debt Contracting Variables for Small Companies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.512***	-0.134	-0.006	**1.105*****	0.035	**12.039*****
	(1.878)	(-0.2920	(-0.085)	(2.664)	(0.093)	(27.187)
GOV	**-0.016***	**0.034****	-0.007	**-0.024***	-0.003	0.030
	(-1.859)	(2.343)	(-0.688)	(-1.863)	(-0.252)	(0.400)
AGE	**0.005***	**-0.008***	**0.005***	0.004	-0.002	-0.022
	(1.929)	(-1.853)	(1.773)	(1.078)	(-0.480)	(-1.131)
COLLT	0.114	0.017	-0.114	0.229	-0.132	-1.098
	(1.078)	(0.096)	(-1.032)	(1.428)	(-0.911)	(-1.302)
Adjusted R^2	**0.067**	**0.077**	**0.096**	**0.031**	**0.052**	**0.008**
N	119	119	119	119	119	119

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables for small companies only. SIZE is excluded because the analysis is applied to small firms only. The regressions include unreported industry dummy variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

4.4.6 SUMMARY OF SENSITIVITY ANALYSIS

The analysis results presented in this section provide robustness checks on the results reported in section 4.3. The findings indicate that default risk reduces access to bank debt and increases cost of debt. Additionally, information risk increases access to asset finance debt and increases cost of debt. The robustness tests indicate that higher levels of corporate governance are negatively related to the default risk and to the innate and discretionary components of the information risk. Furthermore, the relationship between corporate governance and debt contracting is reassessed by introducing an alternate governance variable. Similar to the results obtained in the original

analysis, the robustness results suggest that higher levels of corporate governance increase the access to bank debt and decrease cost of debt. Finally, the assessment of the relationship between corporate governance and debt contracting for different sized companies under different circumstances yields similar results to the original findings. The results indicate that small companies that implement higher levels of corporate governance do not realise debt contracting benefits in the form of higher access to debt or lower cost of debt.

4.5 SUMMARY

The chapter presents the results from the descriptive and multivariate analysis. It is noted that approximately 50% of Australian companies have interest bearing debt as part of their financial liabilities. Additionally, larger companies have a greater access to interest bearing debt relative to other companies. The results also show that bank debt is the most accessed type of debt. Although non-intermediated debt represents the highest quantity (volume) of interest bearing debt accessed, it is the least accessed type of debt. As for the economic sectors, the information technology sector is charged the highest cost of debt while the consumer staples sector pays the lowest cost of debt. The non-intermediated debt contracts are charged the highest cost of debt while bank debt contracts are charged the lowest cost of debt. Furthermore, small companies pay on average the highest cost of debt while large companies pay the lowest cost of debt.

The chapter presents the results of the five hypotheses. H1a which states that default risk is negatively related to the access to quantity of debt is

rejected. However, H1b which states that default is negatively related to debt types is supported for asset finance and bank debts. Additionally, H1c which states that default risk is positively related to the cost of debt is supported.

Hypothesis two states that information risk is associated with the debt contracting variables. The results show that information risk is not related to access to the quantity of debt; therefore H2a is not supported. Additionally, the study does not support H2b which states that information risk is positively related to access to asset finance and negatively related to bank debt, non-bank debt and non-intermediated debt. The results do, however, indicate that information risk is positively related to cost of debt, which supports H2c.

The third hypothesis states that higher levels of corporate governance are negatively related to default risk and information risk. The hypothesis is separated into H3a which states that higher levels of corporate governance reduces default risk and H3b which states that higher levels of corporate governance decreases the information risk. The results suggest that an increase in the level of corporate governance reduces default risk and information risk thereby supporting H3a and H3b.

The fourth hypothesis states that higher levels of corporate governance are related to the access and cost dimensions of debt contracting via risk assessment. The 2SLS estimation, which uses corporate governance as an instrument for risk, supports the impact of corporate governance on debt contracting via risk assessment and paves the way for using OLS to test the direct relationship between corporate governance and access to and cost of debt. The OLS results show corporate governance is negatively related to access to the quantity of debt, therefore H4a is not supported. However, the study

supports hypothesis H4b which states that access to bank debt is positively related to higher levels of corporate governance. This finding suggests that higher levels of corporate governance lead to a greater access to bank debt. Lastly, the study supports H4c which states that higher levels of corporate governance are negatively related to cost of debt. This implies that higher levels of corporate governance lower cost of debt.

Hypothesis five states that small companies access greater quantities and types of debt and pay lower cost of debt in the presence of higher levels of corporate governance. The study does not support H5a and H5b which state that smaller companies access greater quantities of debt and access more types of debt in the presence of higher levels of corporate governance. Additionally, H5c, which states that smaller companies have lower costs of debt in the presence of higher levels of corporate governance, is also not supported. The following chapter reflects on the results provided in this chapter and presents a discussion about the implications of the findings.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

This thesis contributes to understanding the links between corporate governance, risk assessment and debt contracting. The previous chapters provide the theoretical foundation in the DCM and the econometric approach used to obtain the results. This chapter offers a discussion of the results and their implications as well as the conclusion to the study. Additionally, the chapter presents a summary of the study which includes the objectives and motivations as well as the theory and methods used to answer the primary question that underlies the examination of the DCM. Finally, an overview of the limitations of this research is provided to assist in acknowledging the various constraints surrounding this topic as well as future research opportunities.

The remainder of the chapter is partitioned into six sections. Section 5.2 discusses the results of the study. Section 5.3 details the implications of the research. Section 5.4 presents the limitations of the study. Section 5.5 addresses future research that could develop from this study. Finally, section 5.6 provides the conclusion for the chapter and thesis.

5.2 DISCUSSION OF RESULTS

This study tests the five hypotheses developed from the DCM. Hypotheses one and two focus on the relationship between risk assessment and debt contracting while the third hypothesis centres on the relationship between

risk assessment and corporate governance. The purpose behind testing hypothesis four is to assess the impact of higher levels of corporate governance on debt contracting, via risk assessment. Finally, the fifth hypothesis centres on how higher levels of corporate governance influence debt contracting outcomes for different sized companies. The remainder of this section discusses the results and implications for each of the five hypotheses.

Hypothesis one focuses on the relationship between default risk and debt contracting. H1a and H1b state that default risk is negatively related to access to quantity and type of debt respectively, while H1c states that default risk is positively related to cost of debt.

The results indicate that the relationship between default risk and access to debt is not negative as stated in H1a. On the contrary, the relationship is shown to be positive and significant at the 1% level. The findings indicate that an increase in default risk results in an increase in access to quantity of debt. However, there are two possible explanations for this unexpected outcome. The first explanation stems from the inputs of the Z-score, which is the proxy for default risk. The Z-score comprises five accounting ratios one of which is the debt to asset ratio. An increase in interest bearing debt indirectly increases the Z-score and hence contributes to the positive relationship between default risk and access to quantity of debt. The second explanation is that an increase in access to quantity of debt could ultimately lead to an increase in default risk. This presents an endogeneity problem between the quantity of interest bearing debt accessed and default risk as observed by Molina (2005). However, the study uses alternate default risk measures and finds that they are also positively

related to the quantity of debt accessed. This indicates that the higher levels of debt increase the company's default risk.[67]

The relationship between default risk and access to type of debt is evaluated by testing H1b. The study supports H1b which states that default risk is negatively related to the access to asset finance debt and bank debt. This suggests that asset finance debt and bank debt increase in the event of a decrease in default risk. Similar results are reported by Bougheas et al (2006) who conclude that firms with higher default risk receive less bank debt. Furthermore, Gonzalez et al. (2007) find that default risk is negatively related to bank debt but the relationship is not statistically significant. However, the results are not in accordance with the findings of Diamond (1991) and Denis and Mihov (2003) who find that riskier US firms seek private debt, (bank debt is considered private debt) relative to other firms. However as noted earlier, the debt contracting environment in Australia differs significantly from that of the US and hence the US evidence may not be directly comparable to the current study. In Australia, bank debt is more of the norm than in the US hence the relative proportions would be different.

The associations between non-bank debt and non-intermediated debt are also examined by testing H1b. The results show that access to non-bank debt and non-intermediated debt is positively related to default risk, which is contrary to the expected negative relationship between the variables. A possible explanation is that an increase in the aggregate quantity of debt in each debt type increases the level of default risk. The descriptive analysis shows that

[67] Refer to Tables K.8 and K.9 in Section K.2 of Appendix K for further details on the relationship between quantity of debt accessed and the two alternate default risk measures.

the aggregate amount of non-intermediated debt is $54.2 billion which places it at the top of all debt types in terms of quantity of debt (see section 4.2.2.2).

The relationship between default risk and cost of debt is assessed by testing H1c. The results support H1c which states that default risk is positively related to cost of debt. This conclusion is in line with findings reported by Ashbaugh-Skaife et al. (2006), Klock et al (2005), Pittman and Fortin (2004), Anderson et al. (2004), Bhojraj and Sengupta (2003) and Sengupta (1998) who suggest that default risk increases cost of debt. Additionally, the positive relationship between cost of debt and default risk is very strong and consistent across the US and the Australian markets.

Hypothesis two states that information risk is related to the access and cost dimensions of debt contracting. The hypothesis is separated into three sub-hypotheses. H2a states that a negative relationship exists between information risk and access to quantity of debt. Additionally, H2b states that information risk is positively related to asset finance debt, negatively related to bank debt, non-bank debt, and non-intermediated debt. Finally, H2c states that information risk is positively related to cost of debt.

The study does not support H2a which indicates that the company's access to quantities of debt is not influenced by information risk. Furthermore, the results do not support H2b which suggests that the access to the different debt types is not influenced by information risk. However, the results suggest that the positive, although insignificant, relationship between asset finance and information risk is in accordance with Krishnan and Moyer (1994) and Realdon (2006) who show that companies with high levels of risk access secured debt such as finance leases.

The study supports H2c which states that information risk increases cost of debt. This finding supports the results obtained by prior studies that examine the association between information risk and cost of debt. Francis et al. (2005) show that an increase in information risk results in a higher cost of capital. Similar results are reported by Lambert et al. (2009) which find a positive relationship between information risk and cost of debt. Additionally, Gray et al. (2009) show that information risk increases cost of debt for Australian firms.

Sensitivity analysis decomposes information risk into innate and discretionary components and tests the relationship to debt contracting outcomes similar to Dechow and Dichev (2002), Francis et al. (2005) and Gray et al. (2009). The sensitivity analysis results suggest that the innate and discretionary accruals aspects of information risk, increase cost of debt which indicates that the two components are priced in debt contracting. These results are similar to the findings of Francis et al. (2005) which show that innate and discretionary accruals increase cost of capital. However, Francis et al. (2005) state that the innate component of information risk has a stronger influence on cost of capital relative to the discretionary component. Gray et al. (2009) show that information risk increases cost of debt for Australian companies. However, they find that only the innate portion of information risk is related to cost of debt while the discretionary portion is not reported to impact on cost of debt (Gray et al. 2009). The results from Gray et al. (2009) are in agreement with the findings of the current study in terms of the relationship between the innate portion of information risk and cost of debt. However, the two studies are dissimilar in the sense that Gray et al. (2009) does not find a relationship between discretionary accruals and cost of debt while the current study does.

Hypothesis three states that higher levels of corporate governance are related to default and information risks. The hypothesis is partitioned into H3a and H3b which state that corporate governance is negatively related to default risk and information risk respectively. The results support H3a and H3b thereby establishing that corporate governance is related to risk assessment. Furthermore, these results support the DCM's theoretical expectations that corporate governance mitigates agency conflicts between managers and other stakeholders and also increases financial transparency and disclosure, thereby lowering default and information risks. Prior evidence reported by Bhojraj and Sengupta (2003), Ashbaugh-Skaife et al. (2006), Strydom et al. (2009) and Kent et al. (2010) also suggests that corporate governance reduces default and information risks.

The relationship between corporate governance and risk assessment is further explored in the sensitivity analysis by examining whether corporate governance impacts on the innate and discretionary components of information risk. The results show that corporate governance is negatively related to both the innate and the discretionary components of information risk. However, the influence of corporate governance is stronger for the innate component of information risk relative to the discretionary component of information risk. These results are similar to the findings of Kent et al. (2010) which report that corporate governance is related to both the innate and the discretionary components of accruals quality. Furthermore, Kent et al. (2010) conclude that the innate component has a stronger relationship with corporate governance in comparison to the discretionary component.

The fourth hypothesis focuses on the relationship between corporate governance and the debt contracting dimensions via risk assessment. H4a and H4b, state that higher levels of corporate governance are positively related to access to quantity and type of debt respectively via the reduction of default and information risk. H4c states that higher levels of corporate governance impact negatively on cost of debt via risk reduction.

The theorised impact of corporate governance on debt contracting via risk assessment is tested by using 2SLS estimation where corporate governance is used as the instrument for risk. The 2SLS results suggest that corporate governance, as an exogenous variable, could have an impact on debt contracting. The study further tests the relationship between corporate governance and debt contracting by using OLS and the results show that higher levels of corporate governance reduce the aggregate access to quantity of debt. The negative relationship is contrary to the expected positive relationship between governance and access to debt. A possible explanation is that higher levels of corporate governance provide greater managerial monitoring; thereby influencing the ability to seek debt financing. Furthermore, the result is in line with findings of previous studies. Wen et al. (2002) show an increase in corporate governance results in a reduction in debt levels. Similar results are presented by Berger et al. (1997) and Friend and Lang (1988) which find that managerial ownership reduces the debt component in the capital structure. Nevertheless, Funchal et al. (2008) and Abor (2007) report a different set of results which indicates that corporate governance is positively related to interest bearing debt levels.

The relationship between corporate governance and access to the different debt types is examined by testing H4b. The study supports H4b which states that corporate governance increases access to bank debt. However, corporate governance is not found to be related to access to asset finance and is negatively related to access to non-bank debt and non-intermediated debt. A possible explanation for the negative relationship between corporate governance and both access to non-bank debt and non-intermediated debt could be found in the results to hypothesis one which show a positive relationship between default risk and access to non-bank debt and non-intermediated debt. As corporate governance is found to be negatively related to default risk, it could therefore be expected that corporate governance would also negatively affect non-bank debt and non-intermediated debt.

Hypothesis 4c, which states that corporate governance is negatively related to cost of debt, is supported by the test results. Earlier results from H3a and H3b indicate that corporate governance reduces default and information risk. Additionally, results from testing H1c and H2c suggest that default and information risks increase cost of debt respectively. The result from testing hypothesis 4c indicates that corporate governance reduces the agency conflict and lowers information asymmetry thereby decreasing default risk, information risk and cost of debt. This result is in accordance with findings presented by Byun (2007), Ashbaugh-Skaife et al. (2006), Klock et al. (2005), Pitman and Fortin (2004), Anderson et al. (2004), Bhojraj and Sengupta (2003) and Sengupta (1998) which suggest that corporate governance reduces cost of debt in markets other than Australian.

The descriptive results of the debt contracting variables as well as the independent variables used in the research indicate the importance of company size. Smaller companies access less interest bearing debt in total relative to other companies. However, they also access more asset finance debt and less bank debt in comparison to other companies. Furthermore, smaller companies pay a higher cost of debt relative to other companies. Smaller companies also implement lower levels of corporate governance and a have higher default risk and information risk in comparison to other companies. Additionally, smaller companies are younger and have less collateral relative to other companies. The size difference found in this study supports examining the impact of corporate governance on debt contracting for different sized companies. The bottom line is that the debt contracting outcomes are different for smaller companies relative to larger companies.

Hypothesis five focuses on the debt contracting benefits obtained by small companies due to implementing corporate governance. The hypothesis is partitioned into three sub-hypotheses. H5a and H5b, state that smaller companies that implement higher levels of corporate governance have a greater access to quantity and type of debt relative to other companies. The third sub-hypothesis, H5c states that smaller companies that implement corporate governance, contracted debt at lower cost in comparison to other companies. The results indicate that none of the three sub-hypotheses are supported. These results are confirmed by the sensitivity analysis which suggests that small companies do not benefit from high levels of corporate governance.

The results from testing hypothesis five suggest that the cost of implementing improved governance may bring little benefit, at least in terms of

reduced debt contracting costs, for smaller companies. This suggests that mandating a one-size-fits-all approach to governance is possibly sub-optimal and that smaller companies may rightly resist increased governance at least in part due to the proportionally lower cost-benefit trade off that results from implementing costly governance requirements.

5.3 IMPLICATIONS OF THE STUDY

The research has several theoretical, practical and regulatory implications. These implications represent the contributions of the study which are expected to benefit the existing body of knowledge within the accounting academic field, as well as the market via regulators, and providers of accounting services.

5.3.1 THEORETICAL IMPLICATIONS

One of the important contributions to the existing body of knowledge is the examination of the impact of corporate governance on multiple debt contracting dimensions under a different monitoring regime that is characterised by intermediated debt. This study addresses the gap in the accounting literature, which to date has been limited either to the relationship between corporate governance and access to debt or cost of debt, but has not addressed both of these issues. Furthermore, the examination of the impact of corporate governance on debt contracting outcomes for different sized companies is also an essential contribution. The theoretical argument presented within the DCM expects higher levels of corporate governance to increase

access to debt and lower cost of debt for smaller companies. However, the results show that smaller companies do not realise an increase in debt contracting benefits from implementing higher levels of corporate governance. Although the governance-size hypothesis is not supported, it does however show that corporate governance has a differential impact on debt contracting across different sized companies.

This research is amongst a few studies that identify the effect of corporate governance on both access to debt and cost of debt in a market dominated by intermediated debt. One of the vital theoretical contributions centres on investigating the association between corporate governance and debt contracting in a market that assumes differing characteristics relative to the traditionally-studied US market which has been the focus of prior studies (Anderson et al. 2004; Ashbaugh-Skaife et al. 2006; Bhojraj and Sengupta 2003; Sengupta 1998; Klock et al. 2005). The Australian debt market is characterised by intermediated financing (see section 4.2.2.2) which suggests different information flows relative to the US market. As a result corporate governance, default risk and information risk are expected to have a differential impact on debt contracting in the Australian market relative to the US market. This study's theoretical development in the area of agency theory could prove useful to future research that examines markets that are dominated by intermediated debt.

Finally, the current study's theoretical assumptions in the DCM and the econometric estimation methods differ from prior literature. The DCM proposes that higher levels of corporate governance impact on debt contracting via the reduction of default and information risk. Prior accounting literature

assumes that corporate governance along with risk influence debt contracting outcomes. As a result, these studies rely on OLS to test the relationships between corporate governance and the debt contracting variables (Sengupta 1998; Bhojraj and Sengupta 2003; Klock et al. 2005). However, they often include risk measures and corporate governance as covariates in the OLS regression (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006). The current study expects the inclusion of corporate governance and risk assessment as covariates may lead to endogeneity issues which distort the meaningfulness of the results.

The econometric problems caused by endogeneity are addressed in the thesis by using 2SLS instrumental variable method (Larcker and Rusticus 2010; Hail 2002; DeFond et al. 2002). The study initially uses 2SLS where corporate governance is the instrumental variable for risk. Upon confirmation that 2SLS supports the intervening nature of risk the study then estimates OLS to further examine the direct relationship between corporate governance and debt contracting. The study's econometric approach could benefit future research that examines the influence of corporate governance on other firm relevant variables, via risk assessment.

5.3.2 PRACTICAL IMPLICATIONS

The results of the study suggest that higher levels of corporate governance increase the access to bank debt and decrease cost of debt. Accounting firms and financial advisers can draw on the results of this study to advise their clients in an informed manner. In Australia, non-audit services, which include financial counsel on risk management, are a significant source of

revenue for accounting firms (Green et al. 2007). These firms could use the results to demonstrate to their clients that corporate governance influences access and cost dimensions of debt contracting. Furthermore, accounting firms could counsel their clients about the relevance of financial disclosure and reporting quality within the context of debt contracting. The evidence from this study indicates that companies with higher accruals quality (lower information risk) pay less for contracted debt. However, small firms may not necessarily experience debt contracting benefits from higher levels of corporate governance or lower levels of default and information risk.

The current study has identified the importance of further research in addressing several practical issues. Firstly, a future study is needed to assess the relationship between corporate governance and risk assessment for companies that do not have interest bearing debt. Secondly, further examination into cost of debt by debt type is necessary for counselling clients on the trade-offs associated with selecting debt types. [68]

5.3.3 REGULATORY IMPLICATIONS

The results from this research could assist regulators in understanding the impact of corporate governance regulations on business finance. One of the important issues is the differential impact of regulations on small and large companies. The ASX Corporate Governance Council Implementation Review Group (2005) focused on the governance issues faced by small companies. The ASX Corporate Governance Council (2007a) responded to the claims that PGCG adversely impose costs on small companies by amending some of the

[68] A more detailed discussion of these studies is presented in section 5.5.

recommendations that were issued in 2003. The empirical evidence provided by this thesis shows that small and large companies have different corporate governance structures. Additionally, small companies do not realise any debt contracting benefits from following formal corporate governance principles or recommendations. Regulators could utilise these results when considering future regulatory changes that specifically relate to small firms.

5.4 LIMITATIONS OF THE STUDY

Several limitations and threats to validity must be acknowledged when interpreting the results reported in the previous chapter. The two primary threats to validity are threats to internal and external validity (Campbell and Stanley 1963). The following sections detail the two threats to validity and the steps taken to address them.

5.4.1 THREATS TO INTERNAL VALIDITY

Internal validity focuses on the level of certainty with which statements can be made about the relationships between the various variables as measured by the study. Due to the non-experimental nature of this study, many of the common threats to internal validity are not present. Mortality, sample, and operationalistion of construct are the three most important threats to internal validity. Although they are discussed separately, due to the nature of the study, the three threats to internal validity often overlap with each other and thus it is not uncommon to show their collective impact on the interpretations of the results.

The sample selection included all companies with a June 30 balance date in 2007. However, due to the nature of the study which focuses on examining debt contracting, companies from the financial, banking and insurance industries were excluded. The result was a reduction in the size of the sample which impacts on the validity of the results. Additionally, the study's focus on companies with interest bearing debt resulted in the exclusion of 50% of the companies from the initial sample which further impacted on the internal validity.

This research is a cross-sectional study which should exclude the mortality threat. However, the calculation of accruals quality requires companies to have at least five years of data. This stringent requirement resulted in the exclusion of 390 companies from the sample, thereby influencing the validity of the results. Nonetheless, this has been addressed by applying the majority of tests to the main sample which has 595 companies, therefore reducing the mortality threat. The results of the 2SLS estimation, which is conducted on the sub-sample of 205 companies, suggest that the relationship between corporate governance and access to and cost of debt could be examined directly. As a result, many of the estimations exclude the accruals quality variable thus using the main sample of 595 companies.

The methods used to operationalise the constructs used in the study pose possible measurement threats to internal validity. The constructs that relate to the access to quantity and type of debt have not been widely examined by prior studies. Nevertheless, consistent with Bougheas et al. (2006) and Gonzalez (2007), the current study uses the proportion of interest bearing debt to total liability to proxy for the access to debt. Furthermore, proportions are also used

to describe the four debt types by relating the quantity of each debt type to total interest bearing debt (González et al. 2007; Bougheas et al. 2006; Denis and Mihov 2003; Cantillo and Wright 2000). These measurements could represent concepts other than what they purport to measure or they may not adequately capture what they are intended to measure and therefore they could present a threat to internal validity.

To address this important issue, the study uses alternative measures for access to quantity and type of debt. As part of sensitivity analysis, interest bearing debt is divided by total assets rather than total liabilities in order to proxy for access to quantity of debt. Additionally, the quantity of interest bearing debt in each debt type is divided by total assets rather than the total interest bearing debt being used to calculate the access to the different debt types. The sensitivity analysis results show similar findings to those originally reported which indicates that the initial proxies are appropriate for the purpose of this study.

Construct validity is affected by the variables that are selected to proxy for corporate governance, default risk and information risk. Corporate governance is a multi-dimensional concept measured using a composite score which combines fourteen individual corporate governance variables. The fourteen variables are converted into binary variables and are then summed to produce a composite score which ranges from zero to fourteen. However, due to the binary requirement, the composite is limited in capturing the variation in the corporate governance data. To address this issue, the study introduces an alternate governance composite, which uses a different scaling method relative to the original measure. Based on the new criteria, each of the fourteen

corporate governance variables is scaled between zero and ten and hence the maximum composite score is 140. The alternate composite's wider scale range reflects the heterogeneity in the sample companies which could have been missed by the original composite.

An additional threat to the validity of the corporate governance construct is the missing data. Missing corporate governance data influenced the calculation of the individual variables and hence the calculation of the overall composite variable. A primary reason for the missing corporate governance data in annual reports is the fact that companies in Australia do not have to follow PGCG on the condition that they disclose the reasons for not adopting PGCG (Australian Securities Exchange (ASX) Corporate Governance Council 2003b).

The Z-score estimation could have a possible impact on the validity of the default risk construct. The Z-score is a function of five accounting ratios where each ratio is assigned a coefficient developed from a discriminant analysis of failed and non-failed companies. Although the Z-score is widely used as a default risk measure that predicts the company's failure, it could also represent other constructs such as performance or survivability (Altman 1977; Beaver 1966, 1968; Altman 1968; Ohlson 1980; Altman and Saunders 1998; Altman 1983). However, the decomposition of the Z-score reveals that it is primarily driven by leverage ratios rather than profitability. In an attempt to address the limitations of Z-score, the study introduces an alternate proxy for the default risk. The alternate measure is a Z-score that is estimated using a stepwise discriminate analysis of ten accounting ratios rather than five ratios. The increase in the number of ratios used in the alternate measure should allow

for a better selection of the parameters that compose the alternate Z-score. The decomposition of the alternate Z-score suggests that the debt to equity ratio is the driving factor.[69]

Information risk is measured as accruals quality. The study uses the Dechow and Dichev (2002) model to assess the ability of working capital to map into operating cash flows. As mentioned earlier, the nature of the calculation calls for the exclusion of 390 companies that do not satisfy the requirement of having at least five years of data. Additionally, even though accruals quality represents many of the risks related to the level and precision of information, other information risks could be missed. To further address this issue, the study decomposes accruals quality into innate and discretionary components. The innate information risk refers to the company's operating environments while the discretionary information risk is the result of management choices.[70]

5.4.2 THREATS TO EXTERNAL VALIDITY

The ability to generalise the results across populations, settings and times enhances the external validity of the study. The sample selection plays an important role in determining the generalisability of the results. Firstly, the sample excluded companies from the financial, banking and insurance sector. Secondly the remaining companies were chosen on availability basis rather than on random selection. Thirdly, more than 63% of the companies which

[69] The ratio of times interest earned is introduced and tested as an additional proxy for default risk in Section K.2 of Appendix K. Refer to Table K.9 in Appendix K for further details on the regression results that include times interest earned as a measure for default risk.
[70] The bid-ask spread and abnormal accruals are two alternate measures of information risk that are discussed and tested in Section K.3 of Appendix K. Refer to Tables K.15 - K.17 for regression results that include the two alternate variables for information risk.

remained after excluding companies with no interest bearing debt are omitted in order to calculate the information risk variable.

The study has made two significant attempts to mitigate threats to external validity. The first attempt is the careful selection of the study period. The sample includes all companies from the year 2007 that meet the necessary requirements. The year 2007 was selected because it represents the last period prior to the 2008-2009 global financial crises. Due to the relative stability of the examined time period, the results obtained from studying the 2007 data could be generalised to other time periods. The second attempt focuses on the representation of the different industries in the sample. Although many companies were excluded from the sample, the remaining companies represent all industries in the market and therefore the findings extend to all segments in the market.

5.5 FUTURE RESEARCH

The current thesis' examination of corporate governance, risk assessment and debt contracting has paved the way for further research. The current research could be extended to include the association between corporate governance, risk assessment and other facets of debt contracting. Firstly, a possible extension to the current research is a study that addresses the impact of corporate governance on obtaining entry into the debt financial market. Unlike the current study which focuses on companies that already have access to interest bearing debt, the proposed research would encompass all companies including those that do not have interest bearing debt. The proposed research

would ask whether corporate governance practices along with default and information risks are barriers to obtaining interest bearing debt. The objective of such a study would be to test whether the risk reductions advanced by higher levels of corporate governance can assist companies in obtaining interest bearing debt in the financial market. Additionally, it would provide a valuable comparison between companies that have a varying debt composition and the role that corporate governance can play in influencing the debt contracting outcomes for those companies.

Secondly, a future study could address the relationship between corporate governance, risk assessment and the mix of debt types. The current study identifies that large and small companies have a differential mix of debt types (see section 4.2.2.2). A follow on study would trace the cut off points where corporate governance and risk assessment begin to influence the mix of debt types. The main question would be whether higher levels of corporate governance would allow companies to transit from accessing one debt type to another. Additionally, the research could focus on the individual corporate governance variables rather than on corporate governance composite in order to identify which specific corporate governance practice has the most impact on the debt mix. The ability to locate the appropriate level and specific component of corporate governance, which in turn influences the mix of debt types, allows companies to better manage their governance structure and to achieve optimal debt contracting outcomes.

Thirdly, a separate study could focus on the relationship between corporate governance, risk assessment and the cost of each individual debt type. The current study centres on the association between corporate governance and

the weighted average cost of debt for all debt types. Nonetheless, the results show that different debt types such as asset finance debt, bank debt, non-bank debt and non-intermediated debt have differing characteristics, one of which is cost of debt. As a follow on from the current study, future research could examine whether corporate governance, via risk assessment, has a differential impact on cost of debt for the different debt types. Such a study could contribute to identifying the relevance of corporate governance for specific debt types which would lead to a greater understanding of the dynamics within the financial debt market.

Fourthly, a possible future study could address the relationship between corporate governance and debt maturities. The descriptive analysis in the current study shows that 79% of interest bearing debt is long-term whereas only 21% is short-term (see section 4.2.2.2). The question posed for the future is whether higher levels of corporate governance have a differential impact on short-term interest bearing debt versus long-term interest bearing debt. It is expected that companies with higher levels of corporate governance would have greater access to long-term debt. The proposed study would contribute to further understanding the role of corporate governance in influencing debt contracting outcomes.

Fifthly, a study could investigate the inter-relationships between the different debt contracting variables. Debt contracting outcomes are suspected to be associated with each other. In particular, cost of debt is shown in the current thesis to vary depending on the different debt types. Although the interaction between access to debt and cost of debt is outside the scope of the current study, a future investigation could examine whether higher levels of

corporate governance could influence the relationships amongst access to and cost of debt.

Finally, potential research could develop alternative models to assess the relationship between corporate governance and debt contracting. This would entail the use of different measurements to represent corporate governance, default risk, information risk and the access and cost dimensions of debt contracting. Furthermore, the study could be conducted over an extended period of time to assess the changes in the results over the period of the study. A longitudinal study allows the use of different econometric models which control for the time-series variations. Finally, a comparative study which focuses on Australia and other countries could be implemented to gain greater generalisability of the results.

5.6 CONCLUSION

5.6.1 RESEARCH SUMMARY

The principal objective of this research is to examine the relationship between corporate governance and the access and cost dimensions of debt contraction within an Australian context where intermediated debt is the primary source of debt financing. The study is motivated by the limited accounting research that addresses the impact of corporate governance on both access to and cost of debt. In particular, a strong motive to undertake this study is the absence of prior investigation of the association of corporate governance and debt contracting in Australia. The descriptive analyses of the debt contracting variables reveal that approximately 57% of interest bearing debt

carried by Australian companies is intermediated debt. Although prior studies examine the relationship between corporate governance and limited aspects of debt contraction, they predominately focus on the United States where financial markets are characterised by non-intermediated debt financing (Bhojraj and Sengupta 2003; Ashbaugh-Skaife et al. 2006; Pittman and Fortin 2004; Sengupta 1998).

The DCM focuses on the impact of corporate governance on the access to and cost of contracted debt, via risk assessment. Higher levels of corporate governance ensure the monitoring of management and increase the disclosure of value-relevant information which leads to the reduction of agency conflicts and information asymmetries (Anderson et al. 2004; Pittman and Fortin 2004; Bhojraj and Sengupta 2003). As a result, default and information risks are decreased thereby increasing the quantity and type of debt accessed and decreasing cost of debt (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006; Klein 2002; Easley and O'Hara 2004). The model also assumes that smaller sized companies tend to have a greater default risk and information asymmetry, and thus they are expected to experience greater debt contracting benefits due to implementing higher levels of corporate governance relative to larger companies (Elfakhani and Zaher 1998; Binks et al. 1992; Lean and Tucker 2001; Brewer 2007).

The theorised impact of corporate governance on debt contracting via risk assessment leads to testing the relationship between higher levels of corporate governance and access to and cost of debt by estimating a series of 2SLS and OLS regression models. Prior accounting literature uses OLS to test the relationships between corporate governance and other firm relevant

variables however risk measures are often included together with corporate governance in the same estimation model (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003; Beekes and Brown 2006). The current study expects that the use of corporate governance and risk as covariates in an OLS estimation will result in endogeneity problems, which will cause the parameter estimates to be inconsistent thus obscuring the interpretation of the results. The current study addresses the endogeneity problem by using 2SLS estimation (Larcker and Rusticus 2010; Hail 2002; DeFond et al. 2002). In the 2SLS estimation, the corporate governance variable is used as the instrumental variable for risk. Upon confirmation that corporate governance is an instrument for risk, the study uses OLS to test the direct relationship between corporate governance and debt contracting.

The dependent variables are the access to debt and cost of debt. Access to debt comprises two sub-components. The first is the quantity of debt, which is measured as the ratio of interest bearing debt to total liabilities (Bougheas et al. 2006). The second is the type of debt, which is measured as the proportion of asset finance debt, bank debt, non-bank debt and non-intermediated debt to total interest bearing debt. Cost of debt is measured as the weighted average interest rate for the company's interest bearing debt as disclosed in the notes to the financial statements.

Corporate governance is represented by a composite score (Defond et al. 2005). The composite is derived from fourteen individual corporate governance variables, which proxy for management oversight, financial quality, and the equity control dimensions of corporate governance. The corporate governance composite variable aggregates the fourteen individual corporate

governance variables to produce an indicator of the company's corporate governance structure (Defond et al. 2005). A score of fourteen suggests strong corporate governance while a score of zero is an indicator of weak corporate governance.

The independent variable, default risk, is measured by constructing a default risk model that uses discriminant analysis on a matched-pair design of failed and non-failed companies to estimate a Z-score for each company (Altman 1968). The second independent variable, information risk, is measured by calculating accruals quality, which focuses on the mapping of working capital into operating cash flows (Dechow and Dichev 2002; Francis et al. 2005).

Following prior research, variables such as reputation, collateral level and company size are included in the DCM to control for the relationship between corporate governance, risk assessment and debt contracting (Abor 2007; Cantillo and Wright 2000; Wen et al. 2002; Funchal et al. 2008). The current study uses company age as a proxy for reputation. Collateral level is measured as the ratio of fixed assets to total assets. Company size is represented by the log of total assets. Categorical measures of company size are also used in the analysis to represent small and large companies and their relationship to debt contracting variables in the presence of higher levels of corporate governance.

This thesis employs cross-sectional data from 2007 for 1,239 non-financial companies listed on the Australian Securities Exchange with a June 30 balance date. The sample frame is reduced after excluding 618 companies that do not have interest bearing debt. It is further reduced by excluding 26

companies that have missing values and outliers. As a result of excluding these 644 companies from the initial sample, the main sample comprises 595 companies. The inclusion of the information risk variable requires a further reduction in the main sample. The study excludes 390 companies with missing data from the main sample, resulting in 205 companies that have available information which comprise the study's sub-sample. This sub-sample is used only in multivariate analysis requiring the presence of the information risk variable.

The study presents five hypotheses to assess the relationship between corporate governance and debt contracting. Hypothesis one focuses on the relationship between default risk and debt contracting. Hypothesis two addresses the association between information risk and the access and cost dimensions of debt contracting. Hypothesis three states that higher levels of corporate governance are related to default and information risks. Hypothesis four states that higher levels of corporate governance impact on the debt contracting variables via a reduction of default and information risk. Finally, hypothesis five states that small companies access greater quantities and types of debt at a lower cost in the presence of higher levels of corporate governance.

The results show that asset finance debt and bank debt are negatively related to default risk while cost of debt is positively related to default and information risks. Additionally, higher levels of corporate governance reduce default and information risks, increasing the access to bank debt and lowering cost of debt. Finally, the results show that small companies do not access more quantities or types of debt, or pay lower cost of debt in the presence of high levels of corporate governance.

5.6.2 CONCLUDING REMARKS

The chapter presented a summary of the research along with a discussion of the results. Moreover, the chapter discussed the implications of the results for theory, practice and regulations, and the limitations of the study in terms of threats to internal and external validity. Finally, various avenues for future research were suggested in order to build on the current research structure.

In conclusion, the research question posed by the study asked whether corporate governance impacts on the access and cost dimensions of debt contracting via risk assessment in a market characterised by intermediated debt. The results principally support the theorised relationships in the DCM that higher levels of corporate governance are associated with debt contracting via the impact on risk assessment. Specifically, the results show that higher levels of corporate governance, through risk reduction, increase the access to bank debt. More importantly, higher levels of corporate governance reduce the cost of debt for all debt types. However, the results show that smaller companies, in contrast to larger companies, do not realise the debt contracting benefits associated with implementing higher levels of corporate governance.

These results contribute to the accounting literature by providing evidence that supports the positive role of corporate governance in corporate financing within Australia and possibly in other countries that rely heavily on intermediated debt. Additionally, the results could provide accounting and finance practitioners as well as regulators with valuable insight into the complex interactions between corporate governance, risk assessment and debt contracting.

REFERENCES

Abor, J. 2007. Corporate governance and financing decisions of Ghanaian listed firms. *Corporate Governance* 7 (1):83-92.

Ahmed, A. S., B. K. Billings, R. M. Morton, and M. Stanford-Harris. 2002. The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. *The Accounting Review* 77 (4):867-890.

Ajinkya, B., S. Bhojraj, and P. Sengupta. 2005. The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of Accounting Research* 43 (3):343-376.

Altman, E. 1968. Financial ratios, discriminant analysis and the prediction of corporate. *Journal of Finance* 23:589-609.

———. 1977. ZETA analysis: A new model to identify bankruptcy prediction risk of corporations. *Journal of Banking and Finance* 1:29-54.

———. 1983. *Corporate financial distress: A complete guide to predicting, avoiding and dealing with bankruptcy*. Toronto: Wiley & Sons.

Altman, E., and A. Saunders. 1998. Credit risk measurement: Developments over the last 20 years. *Journal of Banking & Finance* 20:1721-1742.

Anand, A. 2005. Voluntary vs mandatory corporate governance: Towards an optimal regulatory framework. In *bepress Legal Series*: bepress Legal Series.

Anderson, R., and D. M. Reeb. 2003. Founding family ownership and firm performance: Evidence from the S&P 500. *Journal of Finance* 58 (3):1301-1328.

Anderson, R. C., S. A. Mansi, and D. M. Reeb. 2003. Founding family ownership and the agency cost of debt. *Journal of Financial Economics* 68:263-285.

———. 2004. Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics* 37:315-342.

Ang, J. S., R. A. Cole, and J. Wuh Lin. 2000. Agency costs and ownership structure. *The Journal of Finance* 55 (1):81-106.

Angelini, P., R. Di Salvo, and v. Ferri. 1998. Availability and cost of credit for small businesses: Customer relationships and credit cooperatives. *Journal of Banking & Finance* 22 (925-954).

Arikawa, Y., and H. Miyajima. 2005. Relationship banking and debt choice: evidence from Japan. *Corporate Governance* 13 (3):408-418.

Ashbaugh-Skaife, H., D. Collins, and R. LaFond. 2006. The effects of corporate governance on firms' credit ratings. *Journal of Accounting and Economics* 42:203-243.

Ashbaugh-Skaife, H., D. W. Collins, W. R. Kinney, and R. LaFond. 2008. The effect of SOX internal control deficiencies and their remediation on accrual quality. *The Accounting Review* 83:217-250.

Ashbaugh-Skaife, H., and R. LaFond. 2006. Firms' corporate governance and the cost of debt: An analysis of U.S. firms' GMI ratings In *Working Paper*.

Ashbaugh, H., D. W. Collins, and R. LaFond. 2004. Corporate governance and the cost of equity capital: Working Paper.

ASX Corporate Governance Council. 2006. Review of the Principles of Good Corporate Governance and Best Practice Recommendations Explanatory Paper and Consultation Paper

Australian Government. 1996. Time for Business: Report of the Small Business Deregulation Taskforce. Canberra.

Australian Institute of Company Directors. *One-size fits all doesn't suit small companies* 2003 [cited.

———. *Role of the audit committee* 2007 [cited.

Australian Securities and Exchange Commission. 2009. Facilitating debt raising. In *Consultation Paper 126*.

Australian Securities Exchange. *Our monitoring of Corporate Governance practices* 2004 [cited.

———. 2007. Listing Rules. In *Australian Securities Exchange*. Sydney.

Australian Securities Exchange (ASX) Corporate Governance Council. 2003a. Companies update: ASX listing rule amendments - corporate governance - transitional arrangements for rule 4.10.3.

———. 2003b. Principles of good corporate governance and best practice recommendations.

———. 2006. Analysis of corporate governance practice disclosure in 2006 annual report: Australian Securities Exchange.

———. 2007a. ASX corporate governance council response to submissions on review of corporate governance principles and recommendations.

———. 2007b. Corporate Governance Principles and Recommendations

Azim, M., and G. Shailer. 2006. Substitute and complementary effects of alternate monitoring mechanisms on firm performance. In *Accounting*

and Finance Association of Australia and New Zealand Annual Conference. Wellington.

Aziz, A., D. Emanuel, and G. Lawson. 1988. Bankruptcy prediction - an Investigation of cash flow based models. *Journal of Management Studies* 25:419-437.

Baker, K., and M. Johnson. 1988. Dividend reinvestment plans after two decades *Financial Management* 17 (3):7-8.

Balvers, R. J., B. McDonald, and R. E. Miller. 1988. Underpricing of new issues and the choice of auditor as a signal of investment banker reputation. *The Accounting Review* 63:605-622.

Barry, P. 1990 *The Rise And Fall Of Alan Bond*: Bantam Books.

Bartholomeusz, S., and G. A. Tanewski. 2006. The relationship between family firms and corporate governance. *Journal of Small Business Management* 44 (2):245-267.

Bartov, E., F. A. Gul, and J. S. L. Tsui. 2000. Discretionary-accrual models and audit qulaifications. *Journal of Accounting and Economics* 30 (3):421-452.

Baysinger, B. D., and H. N. Butler. 1985. Corporate Governance and the Board of Directors: Performance Effects of Changes in Board Composition. *Journal of Law, Economics, & Organization* 1 (1):101-124.

Beasley, M. 1996. An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review* 71 (4):443-466.

Beasley, M., J. V. Carcello, D. R. Hermanson, and P. D. Lapides. 2000. Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. *Accounting Horizons*:441-454.

Beatty, A., S. Liao, and J. Weber. 2008. Financial reporting quality, private information, monitoring and the lease-versus-buy decision. In *Working Paper*.

Beatty, R. P. 1989. Auditor reputation and the pricing of initial public offerings. *The Accounting Review* 64:693-709.

Beaver, W. 1966. Financial ratios as predictors of failures. *Journal of Accounting and Research* 6:71-102.

———. 1968. Market prices, financial ratios and the prediction of failure. *Journal of Accounting and Research* 8:179-192.

Becht, M., P. Bolton, and A. Röell. 2002. Corporate governance and control. In *Working paper 9371*. Cambridge: National Bureau of Economic Research.

Beck, T., and A. Demirguc-Kunt. 2006. Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking and Finance* 30 (11):2931-2943.

Beck, T., A. Demirgüç-Kunt, and V. Maksimovic. 2008. Financing patterns around the world: Are small firms different? . *Journal of Financial Economics* 89 (3):467-487

Beekes, W., and P. Brown. 2006. Do better-governed Australian firms make more informative disclosures? *Journal of Business Finance & Accounting* 33 (3):422-450.

Berger, A., and G. Udell. 1995. Relationship lending and lines of credit in small firm finance. *Journal of Business* 68 (3):351-381.

———. 2002. Small business credit availability and relationship lending: The importance of bank organisational structure. *The Economic Journal* 112 I:F32-F53.

Berger, P. G., E. Ofek, and D. Yermack. 1997. Managerial entrenchment and capital structure decisions *Journal of Finance* 52 (4):1411-1438.

Berle, A., and G. Means. 1932. *The modern corporation and private property*. New York: Macmillan.

Berlin, M., and J. Loyes. 1988. Bond covenants and delegated monitoring. *Journal of Finance* 43:397-412.

Bernoth, K., and G. B. Wolff. 2008. Fool the markets? Creative accounting, fiscal transparency and sovereign risk premia. *Scottish Journal of Political Economy* 55 (4):465-487.

Bharath, S. T., J. Sunder, and S. Sunder. 2004. Do sophisticated investors understand accounting quality? Evidence from bank loans. In *Working Paper*.

———. 2008. Accounting Quality and Debt Contracting. *The Accounting Review* 83 (1):1-28.

Bhattacharya, S., and G. Chiesa. 1995. Proprietary information, financial intermediation, and research incentives. *Journal of Financial Intermediation* 4 (4):328-357.

Bhojraj, S., and P. Sengupta. 2003. Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors. *Journal of Business* 76:455-475.

Binks, M. R., C. T. Ennew, and G. V. Reed. 1992. Information asymmetries and the provision of finance to small firms. *International Small Business Journal* 11:35-46.

Black, B., H. Jang, and W. Kim. 2006. Predicting firms' corporate governance choices: Evidence from Korea. *Journal of Corporate Finance 12 (2006) 660– 691* 12 (3):660-691.

Blue Ribbon Committee (BRC). 1999. Report and recommendations of the Blue Ribbon Committee on improving the effectiveness of corporate audit committee New York.

Bonfim, D., Q. Dai, and F. Franco. 2007. The number of bank relationships and the cost of borrowing. An empirical study. In *Working Paper*.

Bosch, H. 1993. Corporate practices and conduct. Melbourne: Business Council of Australia.

Boubakri, N., and H. Ghouma. 2006. The impact of internal and external governance on debt financing costs and ratings: International evidence.

Bougheas, S., P. Mizen, and Y. Yalcin. 2006. Access to external finance: Theory and evidence on the impact of monetary policy and firm-specific characteristics. *Journal of Banking and Finance* 30:199-227.

Boyd, J., and E. Prescott. 1986. Financial intermediary-coalitions. *Journal of Financial Theory* 38:211-232.

Brewer, E. 2007. On lending to small firms. *Journal of Small Business Management* 45 (1):42-46.

Brickley, J., R. Lease, and C. Smith. 1988. Ownership structure and voting on antitakeover amendments. *Journal of Financial Economics* 20:267-291.

Bugshan, T. 2005. Corporate Governance, Earnings Management, and the Information Content of Accounting Earnings: Theoretical Model and Empirical Tests, Accounting Department, Bond University, Gold Coast.

Bushman, R. M., and A. J. Smith. 2003. Transparency, financial accounting information, and corporate governance. *Economic Policy Review, Federal Reserve Bank of New York* (April):65-87.

Bushmana, R. M., and A. J. Smith. 2001. Financial accounting information and corporate governance. *Journal of Accounting and Economics* 32:237-333.

Byun, H.-Y. 2007. The cost of debt capital and corporate governance practices. *Asia-Pacific Journal of Financial Studies* 36 (5):765-806.

Cadbury Committee. 1992. Report of the committee on the financial aspects of corporate governance. London: Gee Publishing

Campbell, D. T., and J. C. Stanley. 1963. Experimental and quasi-experimental designs for research on teaching. In *Gage (Ed.), Handbook of research on teaching*. Chicago: Rand McNally.

Cantillo, M., and J. Wright. 2000. How do firms choose their lenders? An empirical investigation. *The Review of Financial Studies* 13 (1):155-189.

Carcello, J. V., D. R. Hermanson, and T. L. Neal. 2002. Disclosures in audit committee charters and reports. *Accounting Horizons* 16 (4):291-304.

Carcello, J. V., D. R. Hermanson, T. L. Neal, and R. A. Riley. 2002. Board Characteristics and Audit Fees. *Contemporary Accounting Research* 19 (3):365-384.

Carter, R., and H. Van Auken. 2006. Small Firm Bankruptcy. *Journal of Small Business Management* 44 (4):493-512.

Chang, X., S. Dasgupta, and G. Hilary. 2006. Analyst coverage and financing decisions. *Journal of Finance* 61 (6):3009-3048.

Charreaux, G. 2004. Corporate Governance Theories: From Micro Theories to National Systems Theories. In *FARGO - Centre de recherche en Finance, Architecture et Gouvernance des Organisations Working Paper*.

Chemmanur, T., and P. Fulghieri. 1994. Reputation, renegotiation, and the choice between bank loans and publicly traded debt. *Review of Financial Studies* 7:475-506.

Chen, A. H. 1978. Recent developments in the cost of debt capital. *The Journal of Finance* 33 (3):863-877.

Chen, C., and B. Jaggi. 2000. Association between independent non-executive directors, family control and financial disclosures in Hong Kong *Journal of Accounting & Public Policy* 19 (4/5):285-310.

Chen, Y. M., and J. Y. Jian. 2006. *The Impact of Information Disclosure and Transparency Rankings System (IDTRs) and Corporate Governance Structure on Interest Cost of Debt*: SSRN.

Cheng, J. M. 1988. An alternative financial risk indicator. *Financial Management* 17 (3):8-9.

Chi, W., H. Huang, and H. Xie. 2008. A quantile regression analysis of the economic determinants of bank loan pricing. In *Working paper*.

Chiange, H. 2005. An empirical study of corporate governance and corporate performance *Journal of American Academy of Business* 6:95-101.

Chong, F. 2002. Good riddance to bad boards. . *The Australian*.

Chow, C. W. 1982. The demand for external auditing: size, debt and ownership influences. *The Accounting Review* 57 (2):272-291.

Clarke, A. 2006. Small and medium-sized enterprises (SMEs) and corporate governance: politics, resources and trickle-down effects. *Keeping Good Companies* 58 (6):332-338.

Clarke, T. 2004. Cycles of crises and regulation: The enduring agency and stewardship problems of corporate governance. *corporate Governance - An International Review* 12 (2):153-161.

———. 2007. *International corporate governance : a comparative approach* London: Routledge.

Clarkson, P. M., C. Ferguson, and J. Hall. 2003. Auditor conservatism and voluntary disclosure: Evidence from the year 2000 systems issue. *Accounting & Finance* 43:21-40.

Coase, R. 1937. The nature of the firm. *Economica* 4 (386-405).

Cohen, J., G. Krishnamoorthy, and A. Wright. 2002. Corporate governance and the audit process. *Contemporary Accounting Research* 19:573-592.

———. 2004. The Corporate governance mosaic and financial reporting quality. In *Journal of Accounting Literature*, 87-152.

Coller, M., and T. L. Yohn. 1997. Management forecasts and information asymmetry: An examination of bid-ask spreads. *Journal of Accounting Research* 35 (2):181-191.

Collett, P., and S. Hrasky. 2005. Voluntary disclosure of corporate governance practices by listed Australian companies. *Corporate Governance* 12 (2):188-196.

Collier, P. A. 1993. Audit committees in major U.K. companies. *Managerial Auditing Journal* 8:25-30.

Commonwealth of Australia. 2001a. Australian Securities and Investment Commission

———. 2001b. Corporations Act.

———. 2003. CLERP (Audit Reform & Corporate Disclosure) Bill. Canberra.

———. 2004. Corporate Law Economic Reform Program (CLERP 9) Act 2004, edited by A. G. P. Service. Canberra.

Conyon, M., and C. Mallin. 1997. A review of compliance with Cadbury. *Journal of General Management* 2:24-37.

Copley, P. A., and E. B. Douthett Jr. 2002. The association between auditor choice, ownership retained, and earnings disclosure by firms making initial public offerings. *Contemporary Accounting Research* 19:49-75.

Core, J. E., R. W. Holthausen, and D. F. Larcker. 1999. Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics* 51 (3):371-406.

Costa, G. 2003. Companies slow to shape up *The Sydney Morning Herald*.

Coulton, J., C. James, and S. Taylor. 2001. The effect of compensation design and corporate governance on the transparency of CEO compensation disclosures. In *Working Paper*: University of Technology Sydney.

Cullen, M., C. Kirwan, and N. Brennan. 2006. Comparative Analysis of Corporate Governance Theory: The Agency Stewardship Continuum. In *The 20th Annual Conference of the Irish Accounting & Finance Association*. Ireland: Institute of Technology Tralee.

Da Silva Rosa, R., H. Y. Izan, and M. Lin. 2004. Board characteristics of Australian IPOs: An analysis in light of the ASX best practice recommendations. *Australian Accounting Review* 14 (1):25-32.

Daily, C. M., and D. R. Dalton. 1994. Bankruptcy and corporate governance: The impact of board composition and structure. *The Academy of Management Journal* 37 (6):1603-1617.

Daily, C. M., D. R. Dalton, and A. A. Cannella Jr. 2003. Corporate governance: Decades of dialogue and data. *Academy of Management Review* 28 (3):371-382.

Dalton, D., C. Daily, A. Ellestrand, and J. Johnson. 1998. Meta-analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal,* 19 (3):269-290.

Damodaran, A. 2002. *Investment Valuation*. 2nd ed. New York: John Wiley & Sons.

Davidson, R., J. Goodwin-Stewart, and P. Kent. 2005. Internal governance structures and earnings management. *Accounting and Finance* 45:241-267.

Davidson, W. N., A. K. Bouresli, and M. Singh. 2006. Agency costs, ownership structure, and corporate governance in pre-and post-IPO firms. *Corporate Ownership and Control* 3 (3):88-95.

Dechow, P., and I. Dichev. 2002. The quality of accruals and earnings: the role of accrual estimation errors. *Accounting Review* 77 (35-59).

Dechow, P., and R. Sloan. 1991. Executive incentives and the horizon problem: An empirical investigation. *Journal of Accounting and Economics* 14:51-89.

Dechow, P., R. Sloan, and A. P. Sweeney. 1995. Detecting earnings management *The Accounting Review* 70 (2):193-225.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney. 1996. Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement by the SEC. *Contemporary Accounting Research* 13 (1):1-36.

Defond, M., R. Hann, and X. Hu. 2005. Does the market value financial expertise on audit committees of boards of directors? *Journal of Accounting Research* 43 (2):153-193.

DeFond, M., and J. Jiambalvo. 1994. Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics* 17:145-176.

DeFond, M., and C. Park. 1997. Smoothing income in anticipation of future earnings *Journal of Accounting and Economics* 23 (2):115-139.

DeFond, M. L., K. Raghunandan, and K. R. Subramanyam. 2002. Do non-audit service fees impair auditor independence? Evidence from going concern audit opinions. *Journal of Accounting Research* 40:1247-1274.

Demb, A., and F. Neubauer. 1992. *The corporate board: Confronting the paradoxes*. Oxford: Oxford University Press.

Demirguc-Kunt, A., and V. Maksimovic. 1999. Institutions, financial markets, and firm debt maturity. *Journal of Financial Economics* 54 (3):295-336.

Demirkan, S., and H. Platt. 2009. Financial status, corporate governance quality, and the likelihood of managers using discretionary accruals. *Accounting Research Journal* 22 (2):93 -117.

Denis, D. J., and V. T. Mihov. 2003. The choice among bank debt, non-bank private debt, and public debt: evidence from new corporate borrowings. *Journal of Financial Economics* 70:3-28.

Denis, D. K. 2001. Twenty-five years of corporate governance research...and counting. *Review of Financial Economics* 10 (3):191.

DeZoort, F. T. 1998. An analysis of experience effects on audit committee members' oversight judgments. *Accounting, Organizations and Society* 23 (1):1-21.

Diamond, D. 1984. Financial intermediation and delegated monitoring. *Review of Economic Studies* 51:393-414.

———. 1989. Reputation acquisition in debt markets. *Journal of Political Economy* 97 (4):828–862.

———. 1991. Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy* 99 (4):689-721.

Diamond, D., and R. Verrecchia. 1991. Disclosure, liquidity, and the cost of capital. *The Journal of Finance* 66:1325-1360.

Doyle, J. T., W. Ge, and S. E. McVay. 2007. Determinants of weaknesses in internal control over financial reporting. *Journal of Accounting and Economics* 44:193-223.

Duffee, G. 1999. Estimating the price of default risk. *The Review of Financial Studies* 12:197-226.

Easley, D., and M. O'Hara. 2004. Information and the cost of capital. *The Journal of Finance* 59 (4):1553-1583.

Easterday, K., P. Sen, and J. Stephan. 2008. The persistence of the small firm/January effect: Is it consistent with investors' learning and arbitrage efforts? In *Quarterly Review of Economics and Finance, Forthcoming. Available at SSRN: http://ssrn.com/abstract=1166149*.

Easterwood, J. C., and P.-R. Kadapakkam. 1991. The role of private and public debt in corporate capital structures. *The Journal of the Financial Management Association* 20 (3):49-57.

Eisenberg, T., S. Sundgren, and M. T. Wells. 1998. Larger board size and decreasing firm value in small firms. *Journal of Financial Economics* 48 (35-54).

Eisenhardt, K. M. 1989. Agency theory: An assessment and review. *Academy of Management Review* 14 (1):57-74.

Elfakhani, S., and T. Zaher. 1998. Differential information hypothesis, firm neglect, and the small size effect. *Journal of Financial and Strategic Decisions* 11 (2):29-40.

Elsas, R., and J. P. Krahnen. 1998. Is relationship lending special? Evidence from credit-file data in Germany. *Journal of Banking and Finance* 22 (10-11):1283-1316.

Eng, L. L., and Y. T. Mak 2003. Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy* 22 (4):325-345.

European Central Bank. 2002. The transformation of the European financial system. In *Second ECB Central Banking Conference*.

Fama, E., and M. C. Jensen. 1983a. Agency problems and residuals claims. *Journal of Law and Economics* 26 (2):327-349.

———. 1983b. Separation of ownership and control. *Journal of Law and Economics* 26 (2):301-325.

Fama, E. F. 1985. What's different about Banks? *Journal of Monetary Economics* 15 (1):29-39.

Fan, P. 2004. Review of Literature and empirical research on corporate governance. In *Financial Services Group Training Unit* Singapore: Monetary Authority of Singapore.

Farber, D. B. 2005. Restoring trust after fraud: Does corporate governance matter? *The Accounting Review* 80 (2):539-561.

Farinha, J. 2003. Corporate Governance: A Survey of the Literature. In *SSRN*. Porto: University of Porto.

Federal Reserves Statistical Release. 2008. Flow of Funds Accounts of the United States, Second Quarter.

Fisher, L. 1959. Determinants of Risk Premiums on Corporate Bonds. *The Journal of Political Economy* 67 (3):217-237.

Fitch Ratings. 2004. Evaluating corporate governance: The bondholders' perspective. In *Credit Policy Special Report*.

Flannery, M. J. 1986. Asymmetric information and risky debt maturity choice. *The Journal of Finance* 41 (1):19-37.

Fleming, G., R. Heaney, and R. McCosker. 2005. Agency costs and ownership structure in Australia. *Pacific-Basin Finance Journal* 13:29-52.

Forker, J. 1992. Corporate governance and disclosure quality. *Accounting and Business Research* 22 (86):111-124.

Francis, J., R. LaFond, P. Olssona, and K. Schipper. 2004. Costs of equity and earnings attributes. *The Accounting Review* 79 (4):967-1010.

———. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics* 39:295-327.

Francis, J., and X. Martin. 2010. Acquisition profitability and timely loss recognition. *Journal of Accounting & Economics* 49:161-178.

Francis, J. R., and J. Krishnan. 1999. Accounting accruals and auditor reporting conservatism. *Contemporary Accounting Research* 16:135-165.

Francis, J. R., E. L. Maydew, and H. C. Sparks. 1999. The role of Big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice & Theory* 18:17-34.

Francis, J. R., and M. D. Yu. 2007. The Effect of Big Four Office Size on Audit Quality.

Friend, I., and L. H. P. Lang. 1988. An empirical test of the impact of managerial self-interest on corporate capital structure. *Journal of Finance* 43 (2):271-281.

Fu, J. 2004. Corporate governance in China, Accounting and Finance, The University of Auckland, Auckland.

Funchal, B., F. C. Galdi, and A. B. Lopes. 2008. Interactions between corporate governance, bankruptcy law and firms' debt financing: The Brazilian case. *Brazilian Administration Review* 5 (3):245-259.

Garcia-Teruel, P., P. Martinez-Solano, and J. P. Sanchez-Ballesta. 2008. Accruals quality and corporate cash holdings. *Accounting and Finance* 49:95-115.

Gentry, J., P. Newbold, and D. T. Whitford. 1985. Predicting bankruptcy: If Cash Flow's not the Bottom Line, What Is? *Financial Analysts Journal* 41:47-56.

Gladstein, D. J. 1984. Groups in context: A model of task group effectiveness. *Administrative Science Quarterly* 29: 499–517.

Gompers, p., J. Ishii, and A. Metrick. 2003. Corporate governance and equity prices. *QUARTERLY JOURNAL OF ECONOMICS* 118:107-155.

González, R. L., J. A. Lopez, and J. Saurina. 2007. Determinants of access to external finance: evidence from Spanish firms. In *Federal Reserve Bank of San Francisco, Working Paper 2007-22*.

Goodwin-Stewart, J., and P. Kent. 2006. Relation between external audit fees, audit committee characteristics and internal audit. *Accounting and Finance* 46 (3):387-404.

Goodwin, J., and P. Kent. 2006. Factors affecting the voluntary use of internal audit. *Managerial Auditing Journal* 21 (81-101).

Gray, P., P.-S. Koh, and Y. H. Tong. 2009. Accruals quality, information risk and cost of capital: Evidence from Australia. *Journal of Business Finance & Accounting* 36:51-72.

Green, P., M. Hutchinson, J. S. B. Koh, and J. Walker. 2007. Audit and non-audit service fees in Australia 2000-2005. In *Accounting and Finance Association of Australia and New Zealand Annual Conference*. Gold Coast.

Grenadier, S. 1996. Leasing and credit risk. *Journal of Financial Economics* 42 (3):333-364.

Gu, Z., and J. Y. Zhao. 2006. Information precision and the cost of debt. In *Working Paper*.

Hail, L. 2002. The impact of voluntary corporate disclosures on the ex-ante cost of capital for Swiss firms. *The European Accounting Review* 11 (4):741-773.

Hayes, J. 2003. Tougher rules not always a positive. *The Australian*.

Headd, B. 2003. Redefining business success: distinguishing between closure and failure. *Small Business Economics* 21:51-61.

Healy, P., A. Hutton, and K. Palepu. 1999. Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary Accounting Research* 16:485–520.

Holderness, C. G., and D. P. Sheehan. 1985. Raiders or saviors? The evidence on six controversial investors. *Journal of Financial Economics* 14:555-579.

Honohan, P. 2004. Financial sector policy and the poor : selected findings and issues In *World Bank working paper, no. 43*.

Horwath. 2002. Corporate Governance Report edited by Sydney Australia: Horwath (NSW) Pty Limited.

———. 2004. Corporate Governance Report, edited by Sydney Australia: Horwath (NSW) Pty Limited.

Hoshi, T., A. Kashyap, and D. Scharfstein. 1993. The choice between public and private debt: An analysis of post-deregulation corporate financing in Japan. In *NBER Working Paper Series 4421*.

Hughes, R. 1999. The rise and rise of the audit committee. *Accountancy* 123.

Hyytinenn, A., and M. Pajarinen. 2007. Is the cost of debt capital higher for younger firms? *Scottish Journal of Political Economy, Vol. 54, No. 1, February 2007* 54 (1):55-71.

IFC/World Bank. 2006. The irresistible case for corporate governance: International Finance Corporation.

James, C. 1987. Some evidence on the uniqueness of bank loans. *Journal of Financial Economics* 19 (2):217-235.

James, C., and J. Cotter. 2007. Corporate governance disclosure and the assessment of default risk. In *2007 Oxford Business & Economics Conference*.

Jensen, M. 1993. The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *Journal of Finance* 48 (3):831-880.

Jensen, M. C., and W. H. Meckling. 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, October* 3 (4):305-360.

Jiambalvo, J. 1996. Discussion of causes and consequences of earnings manipulation: An analysis of firms subject to enforcement by the SEC. *Contemporary Accounting Research* 13:37-47.

John, K., and L. Senbet. 1998. Corporate governance and board effectiveness. *Journal of Banking and Finance* 22 (371-403).

Johnson, S., P. Boone, A. Breach, and E. Friedman. 2000. Corporate governance in the Asian Financial crisis. *Journal of Financial Economics* 58:141-186.

Kalbers, L. P., and T. J. Fogarty. 1993. Audit committee effectiveness: An empirical investigation of the contribution of power. *Auditing: A Journal of Practice & Theory* 12:24-49.

Kaplan, R. S., and G. Urwitz. 1979. Statistical models of bond ratings: A methodological inquiry. *The Journal of Business* 52 (2):231-261.

Karamanou, I., and N. Vafeas. 2005. The association between corporate boards, audit committees, and management earnings forecasts; An empirical analysis. *Journal of Accounting Research* 43:453-486.

Kent, P., J. Routledge, and J. Stewart. 2010. Innate and Discretionary Accrual Quality and Corporate Governance. *Accounting and Finance* 50 (1):171-195.

Kent, P., and J. Stewart. 2008. Corporate governance and disclosures on the transition to the International Financial Reporting Standards. *Accounting & Finance* Forthcoming

Kent, P., and K. Ung. 2003. Voluntary disclosure of forward-looking earnings information in Australia. *Australian Journal of Management* 28 (3):273-286.

Kim, J.-B., R. Chung, and M. Firth. 2003. Auditor conservatism, asymmetric monitoring, and earnings management. *Contemporary Accounting Research* 20:323-359.

Kim, Y., C. Liu, and S. Ghon Rhee. 2003. The effect of firm size on earnings management. In *Working paper*.

Klein, A. 1998. Firm performance and board committee structure. *Journal of Law and Economics* 41 (1):275-303.

———. 2002. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33:375-400.

Klock, M. S., S. A. Mansi, and W. R. Maxwell. 2005. Does corporate governance matter to bondholders? *Journal of Financial and Quantitative Analysis* 40 (4):693-719.

Knapp, M. 1987. An empirical study of audit committee support for auditors involved in technical disputes with client management. *The Accounting Review 62* 62 (578-588).

Kole, S. R. 1995. Measuring managerial equity ownership: A comparison of sources of ownership data. *Journal of Corporate Finance* 1:413-435.

Kose, J., and L. Lubomir. 2009. Corporate governance and financing policy: New evidence In *4th Annual Conference on Empirical Legal Studies*. Los Angeles.

Krishnan, S., and C. Moyer. 1994. Bankruptcy costs and the financial leasing decision. *Financial Management* 23 (2):31-42.

LaFond, R., and R. Watts. 2008. The information role of conservative financial statements. *The Accounting Review* 83:447-478.

Laing, d., and C. M. Weir. 1999. Governance structures, size and corporate performance in UK firms. *Management Decision* 37 (5/6):457-464.

Lambert, R., C. Leuz, and R. Verrecchia. 2007. Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research* 45 (2):385-420.

———. 2009. Information asymmetry, information precision, and the cost of capital. In *NBER Working Paper No. 14881*: National Bureau of Economic Research.

Lang, M., and R. Lundholm. 2000. Voluntary disclosure and equity offerings: Reducing information asymmetry or hyping the stock? *Contemporary Accounting Research* 17 (4):623-662.

Larcker, D., and T. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49:186-205.

Lean, J., and J. Tucker. 2001. Information asymmetry, small firm finance and the role of government. *Journal of Finance and Management in Public Services* 1:46-60.

Leftwich, R. W., R. L. Watts, and J. L. Zimmerman. 1981. Voluntary corporate disclosure: The case of interim reporting. *Journal of Accounting Research* 19:50-77.

Leland, H., and D. Pyle. 1977. Informational asymmetries, financial structure and financial intermediation. *Journal of Finance* 32 (2):371-387.

Lipton, M., and J. Lorsch. 1992. A modest proposal for improved corporate governance. *The Business Lawyer* 48 (1):59-77.

Lynn, R. S. 1996. The role of the auditor in corporate governance disclosure, Australian Accounting Review *Australian Accounting Review* 6 (16-18).

Mahir, A., and A. AL-Khazaleh. 2009. Simple robust averages of forecasting using trimming and winsorizing mean. Paper read at Proceedings of the 5th Asian Mathematical Conference, at Malaysia.

Main, B., and J. Johnston. 1993. Remuneration committees and corporate governance. *Accounting and Business Research* 23:351-362.

Majumdar, S. K., and K. Sen. 2006. The costs of agency: Debt composition and diversification strategy in Indian industry. In *Development Economics and Public policy, Paper No. 18*.

———. 2007. The debt wish: Rent seeking by business groups and the structure of corporate borrowing in India. *Public Choice* 130 (1):209-223.

Mansi, S. A., W. F. Maxwell, and D. P. Miller. 2004a. Does auditor quality and tenure matter to investors? Evidence from the bond market. *Journal of Accounting Research* 42 (4):755-793.

———. 2004b. Information, analysts, and the cost of debt. In *Working paper*.

———. 2006. Information risk and the cost of debt capital. In *Working Paper*.

Marsh, H. L., and T. E. Powell. 1989. The audit committee charter: Rx for fraud prevention. *Journal of Accountancy* 167 (2):56.

McCabe, M. 2002. Directors' perception of best practice in corporate governance in Australia, Graduate School of Business Graduate School of Business

McColgan, P. 2001. Agency theory and corporate governance: a review of the literature from a UK perspective. In *Department of Accounting & Finance working paper*. Glasgow: University of Strathclyde, 77.

McConnell, J., and H. Servaes. 1990. Additional evidence on equity ownership and corporate value. *Journal of Financial Economics* 27:595-612.

———. 1995. Equity ownership and the two faces of debt. *Journal of Financial Economics* 39:131-157.

McDonald, C. L. 1973. An empirical examination of the reliability of published predictions of future earnings. *The Accounting Review* 48 (3):502-510.

McMullen, D. A., and K. Raghunandan. 1996. Enhancing audit committee effectiveness. *Journal of Accountancy* 183:79-81.

Méndez, C. F., and R. A. García. 2007. The Effects of Ownership Structure and Board Composition on the Audit Committee Meeting Frequency: Spanish evidence. *Corporate Governance: An International Review* 15 (5):909-922.

Milligan, L., and D. Brearley. 2003. HIH judge warns against reform. *The Australian*.

Minton, B., and C. Schrand. 1999. The impact of cash flow volatility on discretionary investment and the costs of debt and equity financing. *Journal of Financial Economics* 54:423-460.

Molina, C. A. 2005. Are firms underleveraged? An examination of the effect of leverage on default probabilities. *The Journal of Finance* 60 (3):1427-1459.

Morck, R., A. Shleifer, and R. Vishny. 1988. Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics* 20:293-316.

Murphy, A., and K. Topyan. 2005. Corporate Governance A Critical Survey of Key Concepts, Issues, and Recent Reforms in the US. *Employee Responsibilities and Rights Journal* 17 (2).

Murray, L. 2005. Insurers suffering 'regulation overload'. *The Sydney Morning Herald*.

Narayanan, M. P. 1988. Debt versus equity under asymmetric information. *The Journal of Financial and Quantitative Analysis* 23 (1):39-51.

Newman, R. C., W. A. Newman, and G. E. Evans. 1987. Examining the industry comparative traits of hardware and software manufacturers *Information & Management* 13 (4):171-178.

Nicholas, K. 2003. ASX sparks corporate governance revolt. *Australian Financial Review*.

Nikolaev, V., and L. Van Lent. 2005. The Endogeneity bias in the relation between cost-of-debt capital and corporate disclosure policy. *European Accounting Review* 14 (4):677-724.

Niskanen, M., and J. Niskanen. 2010. Small business borrowing and the owner-manager agency costs: Evidence on Finnish data. *Journal of Small Business Management* 48 (1):16-31.

O'Sullivan, M., M. Percy, and J. Stewart. 2008. Australian evidence on corporate governance attributes and their association with forward-looking information in the annual report. *Journal of Management and Governance* 12 (1):5-35.

Ohlson, J. 1980. Financial ratios and the probabilistic prediction of bankruptcy. *Journal of Accounting Research* 19:109-131.

Organisation for Economic Co-operation and Development. 1999. Corporate Governance - improving competitiveness and access to global capital markets. *Corporate Governance* 7 (2).

Owen, N. 2003. The Failure of HIH Insurance, HIH Royal Commission Vols 1,2, and 3.

Patro, S. 2005. Essays on changes in corporate governance: Ownership structure and board structure, Joseph M. Katz Graduate School of Business, University of Pittsburgh, Pittsburgh.

Piot, C., and F. Missonier-Piera. 2007. Corporate governance, audit quality and the cost of debt financing of French listed companies: Working Paper.

Pittman, J. A., and S. Fortin. 2004. Auditor choice and the cost of debt capital for newly public firms. *Journal of Accounting and Economics* 37:113-1136.

Rajan, R. G. 1992. Insiders and outsiders: the choice between informed and arm's-length debt. *Journal of Finance* 47:1367-1406.

Rauh, J. D., and A. Sufi. 2008. The composition and priority of corporate debt: Evidence from fallen angels. In *Working Paper*.

Realdon, M. 2006. Pricing the credit risk of secured debt and financial leasing. *Journal of Business Finance & Accounting* 33 (7):1298-1320.

Reeb, D. M., S. A. Mansi, and J. M. Allee. 2001. Firm internationalization and the cost of debt financing: Evidence from non-provisional publicly traded debt. *The Journal of Financial and Quantitative Analysis* 36 (3):395-414.

Reserve Bank of Australia. 2005a. How do Australian businesses raise debt? In *Financial Stability Review*.

———. 2005b. Syndicated Lending. In *Reserve bank Bulletin*.

———. 2008a. Bank lending classified by sector - D05 edited by B. S. Tables.

———. 2008b. Debt Securities Outstanding - D04 edited by B. S. Tables.

———. 2008c. Lending and credit Aggregates D02 edited by B. S. Tables.

Robicheaux, S., X. Fu, and J. Ligon. 2008. Lease financing and corporate governance. *The Financial Review* 43:403-437.

Sarbanes-Oxley Act. 2002. Public Company Accounting Reform and Investor Protection Act of 2002 FEI Government Relations.

Schauten, M. B. J., and J. Blom. 2006. Corporate governance and the cost of debt. In *Working Paper*.

Scott, J. H. 1981. The probability of bankruptcy: A comparison of empirical predictions and theoretical models. *Journal of Banking and Finance* 5:317-344.

Sengupta, P. 1998. Corporate disclosure quality and the cost of debt. *The Accounting Review* 73 (4):459-474.

Sharar, Z. 2007. A Comparative Analysis of the Corporate Governance Legislative Frameworks in Australia and Jordan measured against the OECD Principles of Corporate Governance 2004 as an International Benchmark, School of Law, Bond University, Gold Coast.

Shaw, K. W. 2007. CEO incentives and the cost of debt. In *Working Paper*: Working Paper.

Shleifer, A., and R. W. Vishny. 1997. A Survey of Corporate Governance. *The Journal of Finance* 52 (2):737-783.

Siladi, B. 2006. The role of non-executive directors in corporate governance: An evaluation. Master of Business, Faculty of Business and Enterprise, Swinburne University of Technology, Melbourne.

Singh, M., and W. Davidson. 2003. Agency costs, ownership structure and corporate governance mechanisms. *Journal of Banking & Finance* 27:793-816.

Slotty, C. 2008. Financial constraints and the decision to lease - Evidence from German SME. In *21st Australasian Finance and Banking Conference*. Sydney, Australia.

Smith, J. 1987. Trade credit and informational asymmetry. *The Journal of Finance* 42 (4):863-872.

Standard & Poor. 2002a. Standard & Poor's corporate governance scores: Criteria, methodology, and definitions. New York: S&P.

———. 2002b. Transparency and Disclosure: Overview of methodology and study results. New York: S&P.

Strydom, M. 2008. The effect of corporate governance quality on accrual mispricing: Australian Evidence. In *PBFEAM 2008 Conference*. Brisbane.

Strydom, M., F. Navissi, M. Skully, and M. Veeraraghavan. 2009. Corporate governance and information risk post Sarbanes Oxley. In *Working Paper*.

Subramanyam, K. 1996. The Pricing of discretionary accruals. *Journal of Accounting and Economics* 22:249-281.

Sykes, T. 1994. *The bold riders: Behind Australia's corporate collapses*. Sydney: Allen & Unwin.

Teplin, A. M. 2001. The U.S. flow of funds accounts and their uses. *Federal Reserve Bulletin* (July):431-441.

Tomasic, R. 2001. Governance and the evaluation of corporate law and regulation in Australia. *Corporate Governance* 1 (3).

Tricker, B. 2005. Corporate governance - A subject whose time has come. *Corporate Ownership & Control* 2 (2):11-19.

Trueman, B., and S. Titman. 1988. An explanation of accounting income smoothing. *Journal of Accounting Research* 26:S127-S139.

Turnbull, S. 1997. Corporate Governance: Its scope, concerns and theories. *Corporate Governance: An International Review* 5 (4):180-205.

Uppal, J. 2007. Role of securities law in the development of domestic corporate bond markets. *State Bank of Pakistan Research Bulletin* 3 (1):75-88.

Vafeas, N. 1999a. Board Meeting Frequency and Firm Performance. *Journal of Financial Economics* 53 (1):113-142.

———. 1999b. The nature of board nominating committees and their role in corporate governance. *Journal of Business Finance & Accounting* 26 (1&2):199-225.

Vafeas, N., and Z. Afxentiou. 1998. The association between the SEC compensation disclosure rule and executive compensation policy changes. *Journal of Accounting and Public Policy* 17:27-54.

Vafeas, N., and E. Theodorou. 1998. The relationship between board structure and firm performance in the UK. *British Accounting Review* 30:383-407.

Vassalou, M., and Y. Xing. 2004. Default risk in equity returns. *Journal of Finance* 59 (2):831-868.

Villalonga, B., and R. Amit. 2006. How do family management, ownership and control affect firm value. *Journal of Financial Economics* 80:385-417.

Warner, B. 1989. *Australia's financial markets : An introduction* Sydney: Allen & Unwin.

Warrick, W. 1999. Post-Blue Ribbon Committee thoughts on developing the audit committee's charter and annual report. *Directorship* 25 (8).

Watson, C. 1990. Multivariate distributional properties, outliers, and transformation of financial ratios. *The Accounting Review* 65 (3):682-695.

Wen, Y., K. Rwegasira, and J. Bilderbeek. 2002. Corporate governance and capital structure decisions of the Chinese listed firms. *Corporate Governance* 10 (2):75-83.

Whelan, C. 2004. Impact of earnings management on the value-relevance of earnings and book value: a comparison of short-term and long-term discretionary accruals, The Accounting Department, Bond University, Gold Coast.

Whittred, G., I. Zimmer, S. Taylor, and P. Wells. 2004. *Financial Accounting: Incentive effects and economic consequences*. 6 ed: Thomson.

Woidtke, T. 2002. Agents watching agents?: evidence from pension fund ownership and firm value. *Journal of Financial Economics* 63:99-131.

Xie, B., W. N. Davidson, and P. J. DaDalt. 2003. Earnings management and corporate governance: the roles of the board and the audit committee. *Journal of Corporate Finance* 9:295-314.

Yatim, P., P. Kent, and P. Clarkson. 2006. Governance structures, ethnicity, and audit fees of Malaysian listed firms. *Managerial Auditing Journal* 21 (7):757-782.

Yermack, D. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40:185-211.

Zain, M. M., N. Subramaniam, and J. Goodwin. 2004. Audit committee and internal audit function characteristics: Impact on internal audit contribution to financial statement audits. In *Working paper*.

Zeitun, R., G. Tian, and K. Keen. 2007. Default probability for the Jordanian companies: A test of cash flow theory. In *Faculty of Commerce - Papers*: University of Wollongong.

Ziebart, D., and S. Reiter. 1992. Bond ratings, bond yields and financial information. *Contemporary Accounting Research* 9 (1):252-282.

Ziolkowski, R. 2005. A re-examination of corporate governance, concepts, models, theories. PhD Corporate law, University of Canberra, Canberra.

APPENDIX A: REVIEW OF LITERATURE

A.1 QUANTITY OF DEBT

Funchal et al. (2008) explore the association between corporate governance, the amount of debt and cost of debt for Brazilian companies between 1998 and 2006. The study argues that corporate governance has a positive effect on the quantity of debt and lowers cost of debt. Total debt, short-term debt and long-term debt are proxies for the amount of debt accessed by the company, while cost of debt is measured as interest expense divided by the average total debt. The study finds that companies with higher levels of corporate governance have higher amounts of debt and a correspondingly lower cost of debt.

Abor (2007) examines the relationship between corporate governance and capital structure decisions for twenty two listed Ghanaian companies for the period 1998 to 2003. The study uses the debt ratio to proxy for the capital structure decision while corporate governance is represented by board size, board composition, duality of CEO and board chair, and CEO tenure. The results indicate a positive relationship between debt levels and corporate governance practices.

Wen et al. (2002) explore the impact of corporate governance on the company's capital structure for 60 listed Chinese companies for the period 1996 to 1998. The research posits that corporate governance is inversely related to the company's capital structure decision. The leverage ratio, measured as total

debt to total assets, is used to proxy for capital structure decisions whereas corporate governance is represented by board size, board composition, CEO tenure and CEO fixed compensation. The study finds a negative relationship between leverage ratio and board composition and CEO tenure.

Berger et al. (1997) examine the association between managerial entrenchment and capital structure decisions for 452 large United States listed companies for the period 1984 to 1991. The study argues that entrenched managers choose lower debt levels in order to reduce the company's risk level. Leverage ratio is used to measure capital structure, while CEO stock ownership is used to proxy for managerial entrenchment. The findings confirm the authors' theory about the negative relationship between capital structure and managerial entrenchment.

Friend and Lang (1988) investigate the relationship between managerial ownership and the company's debt levels for 984 United States listed companies for the period 1979 to 1983. They propose that debt increases the company's non-diversifiable risk, therefore insider stockholders prefer low levels of debt. The study uses debt ratio to proxy for the company's debt level. Additionally, it measures the proportion of shareholdings of dominant managerial and non-managerial stockholders. The results show a negative relationship between debt levels and managerial ownership.

The extant literature regarding the relationship between corporate governance and the amount of debt accessed by companies has produced varying results. Funchal et al. (2008) and Abor (2007) find that corporate governance increases the amount of debt accessed by companies, while Wen et al. (2002), Berger et al. (1997), and Friend and Lang (1988) show that corporate

governance decreases the access to amount of debt. The discrepancies in the evidence presented by other studies suggest a need to further examine the relationships between corporate governance and access to amount of debt. A summary of the conflicting results is presented in Table A.1.

Table A.1: Evidence on Corporate Governance and Quantity of Debt Accessed

Authors	Amount of Debt	Corporate Governance	Control Variables	Country and Sample	Evidence	
					Amount of debt	Cost of debt
Funchal et al. (2008)	Amount of debt: (1) Log of total debt. (2) Log of short-term debt. (3) Log long-term debt. Cost of debt: log of interest expense by mean debt.	Brazilian Corporate Governance Index (BCGI) and bankruptcy law dummy variable.	"GIP percapita", risk-free Brazilian rate, size, and industry.	Brazil. All public companies for the periods 1998, 2000, 2002, 2004, and 2006.	Increase	Reduce
Abor (2007)	Debt ratio	Board size, board composition, duality of CEO and board chair, and CEO tenure.	Size, profitability, risk, and growth.	Ghana. 22 listed companies for the period 1998 to 2003.	Increase	–
Wen et al. (2002)	Debt ratio	Board size, board composition, CEO fixed compensation, and CEO tenure.	Size, profitability, collateral, and asset uniqueness.	China. 60 listed companies for the period 1996 to 1998.	Decrease	–
Berger et al. (1997)	Debt ratio	Board size, board composition, CEO stock ownership, CEO option holdings, blockholder, and CEO tenure.	Size, profitability, noninterest tax shields, collateral, and two asset uniqueness measures.	United States. 452 large listed industrial companies for the period 1984 to 1991.	Decrease	–
Friend and Lang (1988)	Debt ratio	(1) Market value of equity in the firm dominated by managerial insider. (2) Fraction of equity held by dominant managerial insider. (3) Fraction of equity held by dominant non-managerial stockholder.	Size, profitability, collateral, and risk.	United States. 984 listed companies for the period 1979 to 1983.	Decrease	–

A.2 TYPE OF DEBT

The decision to seek private or public debt is significantly influenced by the borrower's credit quality and default risks (Vassalou and Xing 2004; Denis and Mihov 2003). Prior studies from the US find that larger, older, and more successful companies tend to raise debt capital by issuing publicly traded corporate bonds (Diamond 1991; Cantillo and Wright 2000; Denis and Mihov 2003; Hoshi et al. 1993).

Companies that are young and less successful with high probabilities of default tend to choose private debt in order to establish financial and reputation credit (Diamond 1991). Banks and non-bank financial intermediaries are efficient in monitoring management and in obtaining private information (Fama 1985; Diamond 1984; Boyd and Prescott 1986). Furthermore, financial intermediaries provide some flexibility for borrowers to reschedule payments and renegotiate debt contracts, which could prevent companies from formally entering into a state of default (Easterwood and Kadapakkam 1991; Berlin and Loyes 1988; Chemmanur and Fulghieri 1994). The following summaries of previous research detail the key drivers of the type of debt accessed.

Gonzalez et al. (2007) study the determinants of debt financing from bank and non-bank sources for 60,000 Spanish listed companies for the period 1992 to 2002. The study presents macroeconomic and microeconomic factors that are expected to influence the company's choice of bank and non-bank debt financing. The debt measures used are short-term debt to total debt, short-term bank debt to total debt, short-term non-bank debt to total debt. The analysis shows the dependence of Spanish companies on short-term non-bank financing.

Additionally, company size, age, profitability, collateral, and gearing levels are found to be important determinants of debt sources.

Bougheas et al. (2006) examine the determinants of debt sources for 16,000 British manufacturing companies for the period 1992 to 1998. The study considers short-term debt as a proxy for bank debt while long-term debt represents other financing sources. The results indicate that small, young, risky, and indebted firms access bank financing.

Denis and Mihov (2003) examine the determinants of public and private financing for 1,560 new debt issues made by 1,480 United States companies for the period 1995 to 1996. The study examines the probability of issuing public debt relative to bank and non-bank debt. The empirical analysis shows that companies with the highest credit quality access public debt, firms with medium credit quality access bank debt, and firms with the lowest credit quality access non-bank debt. In addition, firms that access public debt are larger, more profitable, more highly leveraged, have higher proportions of fixed assets relative to total assets and have fewer growth opportunities than firms that rely on bank debt.

Cantillo and Wright (2000) explore the relationship between financing sources and various company characteristics for companies in the United States. The study used two sample sets. The first included 291 companies with uninterrupted annual data from 1974 to 1992. The second data set included 5,554 companies with at least one-year's worth of data for the period 1985 to 1992. The debt variables used are the ratings for bond and commercial papers. The results show that large companies with high collateral and high cash flows

tend to borrow from public lenders. Additionally, closely held and family firms are more likely to borrow from private lenders.

Prior research focuses on the predictors of the type of debt accessed by companies. Default risk, collateral level, age, size, leverage level, and profitability have been determined as the main drivers of the type of debt contracted by companies (González et al. 2007; Bougheas et al. 2006; Denis and Mihov 2003; Cantillo and Wright 2000). The evidence provided by past studies indicates that older, established, and profitable companies with low default risk tend to seek public debt while small, young, and less profitable companies with high default risk choose private debt (Bougheas et al. 2006; Denis and Mihov 2003; Cantillo and Wright 2000). However, studies to date have not considered corporate governance as a determinant of access to the type of debt. This study addresses this gap in the literature by examining the impact of corporate governance on the access to the type of debt dimension of debt contracting. Table A.2 provides a summary of determinants of the access to the type of debt.

Table A.2: Evidence on Determinants of Access to Type of Debt

Authors	Type of Debt	Company Characteristics	Country and Sample	Evidence	
				Public debt	Private debt
Gonzalez et al. (2007)	Log-odd transformation of: (1) Short-term debt to total debt. (2) Short-term bank debt to total debt. (3) Short-term non-bank debt to total debt. (4) Total bank debt to total debt.	Microeconomic: size, collateral, profitability, age, default and other risks, liquidity, and banking relationship. Macroeconomic: Industrial production index, and average of monthly index of interest rate paid on 3 month deposits.	Spain. 60,000 listed companies for the period 1992 to 2002.		Short-term non-bank financing.
Bougheas et al. (2006)	Log-odd transformation of: (1) Short-term debt to total debt. (2) Total debt to total liabilities.	Size, collateral, profitability, age, default and other risks, and growth.	United Kingdom. 16,000 manufacturing listed companies for the period 1992 to 1998.	Large, older, low risk, and low-debt companies.	Small, young, risky, and indebted companies.
Denis and Mihov (2003)	Log-odd ratios of: (1) Probability of issuing public debt relative to private debt. (2) Probability of issuing non-bank private debt relative to private bank debt. (3) Differences of relative probabilities of issuing public debt versus non-bank private debt.	Size, collateral, profitability, default and other risks, investment grade rating, the amount of debt issued, and insider ownership.	United States. 1,560 new debt issues made by 1,480 listed companies for the period 1995 to 1996.	High credit quality, large, profitable, more highly leveraged, high collateral and low growth opportunity companies.	Medium to low credit quality, small, less profitable, low collateral and high growth opportunity companies.
Cantillo and Wright (2000)	(1) Percentage of long-term debt held in publicly traded financial instruments. (2) Dummy variable for bond rating. (3) Dummy variable for commercial paper rating.	Size, collateral, profitability, age, risk, family control, insider ownership, and institutional ownership.	United States. Two data sets: (1) 291 companies with uninterrupted annual data from 1974 to 1992. (2) 5,554 companies with at least 1 year of data between 1985 to 1992.	Large, high collateral and cash flows companies.	Small, low collateral and cash flows, and closely held companies.

A.3 COST OF DEBT

The cost of public debt is the required rate of return on risky bonds (Chen 1978). Bond yield, or the return received if a bond is held until maturity, is affected by various factors. Prior studies state that bonds are impacted by issue and issuer characteristics (Bhojraj and Sengupta 2003; Pittman and Fortin 2004; Sengupta 1998). Issue characteristics include size of the issue, years to maturity, call provisions, seniority of debt, and sinking fund provisions (Ziebart and Reiter 1992; Reeb, Mansi, and Allee 2001; Ashbaugh-Skaife et al. 2006; Sengupta 1998; Bhojraj and Sengupta 2003). Issuer characteristics include default risk, leverage, performance, and ability to repay interest (Chi, Huang, and Xie 2008; Ahmed, Billings, Morton, and Stanford-Harris 2002; Fisher 1959; Gu and Zhao 2006; Mansi, Maxwell, and Miller 2006; Mansi, Maxwell, and Miller 2004b; Kaplan and Urwitz 1979; Pittman and Fortin 2004).

The cost of private debt is highly dependent on the company's credit and default risk (Denis and Mihov 2003; Diamond 1991). Additionally, it is also affected by the profitability of the borrower, collateral provided to secure the debt, the relationship between lender and borrower, the amount of the loan, and the borrower's size and age (Bonfim et al. 2007; Berger and Udell 1995; Elsas and Krahnen 1998; Niskanen and Niskanen 2010). The cost of private debt is assumed to be higher than public debt for two reasons. The first is that companies that seek private debt financing have higher credit and default risks (Denis and Mihov 2003; Diamond 1991). The second is the potential bargaining power by private lenders due to their possession of borrowers' private information (Rajan 1992).

Other factors, such as corporate governance, impact on cost of debt (Anderson et al. 2004; Ashbaugh-Skaife and LaFond 2006). The informational quality of corporate governance affects the company's expected cash flows and default risk assessment, thereby reducing cost of debt. The following studies address the relationship between corporate governance and cost of debt

Byun (2007) examines the association between corporate governance practices and cost of debt for 331 South Korean companies for the period 2001 to 2004. The study develops a corporate governance score based on the composition of board of directors, shareholder rights, corporate disclosure, audit committee processes, and dividend polices. The governance score was regressed against several costs of debt measures such as yield spreads, interest expense scaled by financial debt, weighted average bond ratings, and industry-adjusted leverage ratio. The results reveal a negative relationship between cost of debt and corporate governance practices, which is more pronounced in large companies relative to small companies.

James and Cotter (2007) survey the impact of corporate governance disclosure on default risk and credit ratings for 38 Australian companies listed on the ASX during 2004. The study predicts that a higher level of corporate governance disclosure decreases the company's default risk. The study constructs a corporate governance index that is based on annual report disclosures. The results show no significant relationship between corporate governance disclosures and default risk.

Ashbaugh-Skaife et al. (2006) study the relationship between corporate governance and credit ratings for 894 US companies from the year 2002. Ownership, stakeholder rights, financial transparency, and board structure are

the four components of corporate governance. The research proposes that corporate governance mechanisms mitigate agency costs, which subsequently lead to increasing the company's credit ratings. The results indicate that higher credit ratings, which are proxies for cost of debt, are positively related to financial transparency, board independence, board stock ownership, and board expertise. Additionally, higher credit ratings are negatively associated with blockholders that own at least 5 percent of total shares and CEO power on the board.

Ashbaugh-Skaife and LaFond (2006) expand the Ashbaugh-Skaife et al. (2006) research by introducing the Governance Metrics International (GMI) score for 936 US companies from the year 2005. The study tests whether an association exists between GMI score and the company's credit rating. Ashbaugh-Skaife and LaFond (2006) conclude that companies with higher GMI scores had higher credit ratings leading to lower costs of debt.

Klock et al. (2005) investigate the relationship between a corporate governance index and the cost of debt financing for 678 US companies from the years 1990, 1993, 1995, 1998, and 2000. The study argues that anti-takeover measures, while beneficial for shareholders, are harmful to debtholders. The study asserts that management responds to takeover threats by certain actions, which ultimately favour shareholders as opposed to debtholders. The two main variables of interest in the study are yield spread and a corporate governance index. The yield spread represents the difference between a company's yield to maturity and the yield to maturity on a United States treasury security, while the corporate governance index includes 24 anti-takeover measures. The study

finds that a negative relationship exists between the corporate governance index and cost of debt financing.

Mansi et al. (2004a) study the relationship between auditor characteristics, such as quality and tenure, and cost of debt for 1,305 US companies during the period 1974 to 1998. They propose that auditors provide an independent verification of the financial reports prepared by the company. Additionally, auditors could be held liable by investors if deficiencies are detected in the verification process. As a result, the audit process should reduce the cost of debt. Their results indicate that auditor quality and tenure are negatively related to cost of debt.

Pittman and Fortin (2004) examine the association between auditor choice and cost of debt for initial public offerings for 371 US companies that were listed during the period 1977 to 1988. The study suggests that younger companies benefit from retaining a Big Six auditor. The high-quality monitoring that is provided by a Big Six auditor leads to decreased cost of debt for young companies. Additionally, they state that the benefits of having a Big Six auditor diminish as young companies mature in age. The cost of debt is measured as the company's annual interest rate divided by its average short-term and long-term debt during the year. These researchers report a negative relationship between hiring a Big Six auditor and cost of debt for young companies.

Anderson et al. (2004) investigate the relationship between board structure and the cost of debt for 252 US industrial companies found on the S&P 500 from the years 1993 to 1998. The study posits that independent directors, bigger board sizes, audit committee independence, board expertise,

and audit committee meeting frequency increase monitoring effectiveness, which subsequently reduces the company's cost of debt. The cost of debt variable is measured by calculating the spread between the weighted-average yields to maturity on the company's publicly traded debt and the yield to maturity of United States Treasury securities. The study finds that independent boards, larger boards, and fully independent audit committees are associated with lower a cost of debt.

Bhojraj and Sengupta (2003) examine the association between corporate governance and bond ratings and yields for 1,005 US companies from the years 1991 to 1996. The study argues that good governance practices decrease agency and information risk, hence reduce bond yields, and increase bond ratings. It focuses on institutional investors and board control as the two main corporate governance mechanisms. Bhojraj and Sengupta (2003) use bond yields and bond ratings as the two dependent variables. The corporate governance variables are institutional ownership, proportion of independent directors on the board, and ownership concentration. The study controls for size, maturity, and seniority of board members. The results demonstrate that large institutional ownership is associated with higher ratings and lower yields. In addition, as the concentration of institutional investors increases, the bond ratings decrease and the bond yields increase. The presence of independent directors is positively related to a higher rating and to lower yields.

Sengupta (1998) explores the link between the overall quality of disclosure and companies' credit ratings for 114 US companies from the years 1987 to 1991. The study relates the quality of information released by companies to the market's perception of default risk for those companies. The

yield to maturity and the total interest cost are used as proxies for cost of debt. The study measures the quality of disclosure by using the Financial Analysts Federation score and controls for company size and maturity. The results of the study indicate that a negative relationship exists between cost of debt and the quality of disclosure.

Several public and private reports address empirical evidence on policy statements regarding the relationship between corporate governance and cost of debt. The IFC/World Bank (2006) states that good corporate governance practices enhance performance, increase stock value, and decrease cost of debt. This report is aimed at convincing companies to adopt corporate governance practices on an international level and to establish a link between good corporate governance practices and to lower interest premiums. Fitch Ratings (2004) state that companies with weak governance practices encounter a lower credit rating assessment.

Previous studies consistently find that corporate governance practices lower cost of debt. The significant other factors that influence cost of debt are size, default and other risks, profitability, industry affiliation, collateral level, and age (Bhojraj and Sengupta 2003; Byun 2007; Ashbaugh-Skaife et al. 2006; Klock et al. 2005; Pittman and Fortin 2004; Anderson et al. 2004; Sengupta 1998). A summary of previous studies that investigate the relationship between corporate governance and cost of debt is provided in Table A.3. It is evident that the majority of prior studies focus on large United States companies, which depend heavily on publicly traded debt for financing.

Table A.3: Research on the Relationship between Corporate Governance and Cost of Debt

Authors	Cost of Debt	Corporate Governance	Control Variables	Country and Sample	Evidence
Byun (2007)	(1) Industry-adjusted leverage ratio. (2) Interest expense divided by average S-T and L-T financial debt. (3) Weighted average bond rating. (4) Spread between YTM on bond issue and YTM on treasury security.	Corporate governance score.	Firm characteristics: Size, default and other risks, profitability, growth, collateral, and interest coverage. Bond characteristics: duration, convexity, issue size, time to mature, and bond age.	South Korea. 331 companies from 2001 to 2004.	Reduce.
James and Cotter (2007)	S&P Credit ratings.	Corporate governance index.	Firm characteristics: Size, risk, profitability, and collateral.	Australia. 38 companies listed on the ASX in the year 2004.	No Relationship.
Ashbaugh-Skaife et al.(2006)	S& P Credit ratings.	Corporate governance attributes: ownership structure, Financial stakeholder rights, Financial transparency, and board structure.	Firm characteristics: Size, risk, profitability, interest coverage, presence of subordinated debt, and capital intensity.	United States 894 companies for the year 2002.	Reduce.
Klock et al. (2005)	Spread between YTM on bond issue and YTM on US treasury security.	Corporate governance index.	Firm characteristics: Size, risk, profitability growth, and institutional ownership. Security characteristics: Credit ratings, duration, convexity, and bond age.	United States 678 companies from the years 1990, 1993, 1995, 1998, and 2000.	Reduce.
Pittman and Fortin (2004)	The company's interest rate for the year divided by its average short-term and long-term debt during the year.	Identity of auditor, prime rate default risk and age.	Firm characteristics: Size, risk, collateral, age, and industry.	United States 371 firms that went public during the period 1977 until 1988.	Reduce.

Table A.3: Research on the Relationship between Corporate Governance and Cost of Debt (continued)

Authors	Cost of Debt	Corporate Governance	Control Variables	Country and Sample	Evidence
Anderson et al. (2004)	Yield spread which is the difference between the company's weighted average YTM and the YTM on a US Treasury security.	Independent directors, board size, audit committee independence, size of audit committee, board expertise, financial expertise on the audit committee, and frequency of audit committee meetings.	Firm characteristics: Size, risk, profitability, blockholdings bond duration, credit ratings, and liquidity.	United States 252 companies from 1993 until 1998.	Reduce.
Bhojraj and Sengupta (2003)	Bond yields (YTM on bond issue less YTM on US treasury security) and bond ratings.	Institutional ownership and outside directors on the board.	Firm characteristics: Size, risk, and profitability. Security characteristics: Log of size of issue, years to maturity, the ratio of days to first call divided by the days to maturity, seniority, and sinking fund provision.	United States 1,005 industrial companies from 1991-96.	Reduce.
Sengupta (1998)	YTM on the debt issue and total interest cost (credit ratings are also used to show relation between default risk and disclosure).	The Financial Analysts Federation score.	Firm characteristics: Size, risk, profitability margin, and interest coverage. Security characteristics: Log of size of issue, log of years to maturity, the ratio of the years to first call divided by the years to maturity, seniority, and convertibility. Market condition: yield on US Treasury security, average yield on Moody's Aaa bonds less yield on 30 year US Treasury security.	United States 114 companies from 1987-91 (YTM Dep. Variable) and 103 companies (Total interest cost Dep. Variable).	Reduce.

APPENDIX B: AGENCY CONFLICT AND DEBT CONTRACTING

This study adopts an agency theory approach to the relationship between corporate governance and debt contacting. It focuses on the various attributes of corporate governance that lower information asymmetry and agency costs and increase the quality of reported information.

The agency theory focuses on the conflicts that eventuate from the separation of principals and agents (Berle and Means 1932; Coase 1937; Jensen and Meckling 1976; Fama and Jensen 1983a, 1983b; Eisenhardt 1989; Shleifer and Vishny 1997). This separation results in information asymmetry, which leads to a moral hazard problem (Ashbaugh-Skaife et al. 2006; Jensen and Meckling 1976). Principals are interested in maximizing their wealth while agents are interested in advancing their own financial position by expropriating funds from the principals. Two types of agency conflicts exist which can reduce the value of the company. The first conflict is between the management and the shareholders in the company. The second conflict is between shareholders, represented by management, and debtholders (Whittred, Zimmer, Taylor, and Wells 2004; Ashbaugh-Skaife et al. 2006; Eisenhardt 1989; Fama and Jensen 1983a; Jensen and Meckling 1976).

The conflict between management and shareholders stems from management's possession of information not available to owners (Coller and Yohn 1997; Jensen and Meckling 1976). This concentration of information provides managers with incentives for self-seeking behaviour at the expense of

other stakeholders (Fama and Jensen 1983b; Jensen and Meckling 1976; Fama and Jensen 1983a). The actions of self-interested management can encompass shirking, over-consumption of perquisites, unprofitable investments, and empire building (Sengupta 1998; Shleifer and Vishny 1997; Dechow and Sloan 1991; Jensen and Meckling 1976; Farinha 2003; Bhojraj and Sengupta 2003; Fan 2004). The negative effects of self-seeking managerial behaviour result in reducing the company's expected cash flows which increases the default risk on debt (Sengupta 1998; Ashbaugh-Skaife et al. 2006; Ashbaugh-Skaife and LaFond 2006; Bhojraj and Sengupta 2003; Jensen and Meckling 1976).

The second agency conflict occurs between shareholders, represented by management, and debtholders (Ashbaugh-Skaife et al. 2006; Whittred et al. 2004). Debtholders and shareholders have varying expectations regarding the return on investments. This variance in expectations provokes an agency conflict between the two parties. Shareholders expect variable returns in the form of cash flow rights such as dividends and share repurchases. The debtholders' return, however, is fixed and confined to contractual agreements. Shareholders have incentives to transfer wealth from debtholders by claiming the company's free cash flow. An example of free cash flow allocation is asset substitution where the company diverts the borrowed funds from investments in low risk assets to risky projects (Whittred et al. 2004). These projects, if successful, yield benefits to shareholders and if unsuccessful, adversely affect debtholders by reducing the company's expected cash flows and increasing the default risk (Jensen and Meckling 1976).

Agency conflicts between managers, shareholders, and debtholders result in costs being incurred by different parties. Jensen and Meckling (1976)

identify three major components of agency costs. The first is the monitoring of agents so that they act in the best interest of the principals. Such costs could be audits and other reviews, along with incentive payments, such as profit sharing schemes or executive option plans. The second are costs borne by the agent which guarantee that no actions are taken that harm the principal. The third are monetary costs that are the results of divergence between the agents' decisions and those of the principals. Those costs are also known as residual losses because they lead to a reduction in company value (Whittred et al. 2004).

Agency conflicts are usually mitigated by contracts that bind the parties to a specified set of agreements. However, it is virtually impossible to create a contract for all possible eventualities (Cullen, Kirwan, and Brennan 2006). The anticipated causes for misalignment of interest between the stakeholders could be remedied by the implementation of corporate governance practices (Anderson et al. 2004; Bhojraj and Sengupta 2003; Sengupta 1998; Ashbaugh-Skaife et al. 2006). Corporate governance's impact on agency conflict resolution can also benefit debtholders, via the reduction of information asymmetry between management and stakeholders. The informational benefits associated with corporate governance allow capital providers to assess the risk of the company. The risk assessment process significantly influences access and cost dimensions of debt contracting.

APPENDIX C: CORPORATE GOVERNANCE OVERVIEW

Corporate governance influences the company's contracting arrangements, particularly debt contracts (Ashbaugh-Skaife et al. 2006; Sengupta 1998; Mansi et al. 2004a; Anderson et al. 2004; Abor 2007; Funchal et al. 2008). The recent accounting scandals and high profile corporate failures reaffirmed the importance of sound corporate governance practices. The use of the term "corporate governance" became common amongst academics and practitioners during the 1980s which witnessed the rise of global privatisation, pension fund reforms, takeover activities, and deregulation and integration of capital markets (Jensen 1993; Murphy and Topyan 2005; McCabe 2002; Becht, Bolton, and Röell 2002). However, implicit issues addressed by corporate governance, such as mitigation of the agency problem, date back as early as the modern corporation (Tricker 2005). The following section presents several definitions of corporate governance, as stated in previous literature, along with the definition adopted by this study.

C.1 CORPORATE GOVERNANCE DEFINITION

Corporate governance impacts the company's strategic and operational decisions. As a result, management and corporate governance concepts have been used interchangeably, thus contributing to the confusion regarding the exact nature of corporate governance (Sharar 2007). Management refers to the

operational aspect of running a company by a hierarchal system of accountability while governance conveys the strategic responsibilities that lie with the board of directors (Ziolkowski 2005).

Corporate governance definitions are classified into regulatory, stakeholder, and agency conflict categories. The regulatory definition states that corporate governance is the system by which companies are controlled and directed (Bosch 1993; Cadbury Committee 1992; Australian Securities Exchange (ASX) Corporate Governance Council 2003b; Organisation for Economic Co-operation and Development 1999).

The stakeholder definition of corporate governance refers to the process by which firms respond to the rights and concerns of stakeholders (Demb and Neubauer 1992). Siladi (2006) state that corporate governance mediates the relationship between the corporation and its stakeholders. According to Daily, Dalton, and Cannella (2003) the governance of companies lies with boards of directors whose primary responsibility is to use all possible resources to resolve conflicts among the stakeholders in the company. John and Senbet (1998) describe corporate governance as the mechanism used by stakeholders to protect their interest by exercising control over management and corporate insiders. Turnbull (1997) defines corporate governance as all of the influences that affect the institutional process.

The agency conflict definition of corporate governance focuses on the divergence of the interests for both principals and agents. The study by Shleifer and Vishny (1997) defines corporate governance as the mechanism in which the suppliers of finance can assure themselves of receiving some return on their

investment. Fan (2004) expresses corporate governance as the mechanisms and procedures that address the agency problem between managers and owners.

This thesis adopts an agency conflict approach to describe corporate governance. Corporate governance is defined as the methods employed by the owners via the board of directors to mitigate the debt agency conflict and to align the interests of managers and owners with those of the debtholders. The following section describes some of the major milestones in the development of corporate governance practices.

C.2 DEVELOPMENTS IN CORPORATE GOVERNANCE DEFINITION

Formal corporate governance practices evolved rapidly during the last three decades, in part due to pressures from regulators and market authorities. For some companies, voluntary corporate governance practices have always been a part of their overall corporate strategy. However, formal directives require companies to implement and disclose corporate governance practices. The following section describes some of the regulatory developments in corporate governance practices.

Typically, the design and effective implementation of corporate governance practices undergo a thorough examination immediately following major corporate unrest (Charreaux 2004; Clarke 2004). This heightens the significance of formally implementing such practices as a preventative measure against future corporate uncertainties. The Cadbury (1992) and Blue Ribbon (1999) reports present formal responses to the economic and financial changes

witnessed in 1980s and 1990s by stressing the importance of board independence and recommending the establishment of audit committees (Tricker 2005; Cohen, Krishnamoorthy, and Wright 2004). Additionally, the Asian Financial Crises in 1997 and 1998 were partly attributed to weak corporate governance practices (Johnson et al. 2000). In 1999, The Organization for Economic Co-operation and Development (hereafter OECD) proposed global corporate governance guidelines, which later became one of the benchmarks for country-specific corporate governance practices (Organisation for Economic Co-operation and Development 1999). The early part of 2000s witnessed the collapse of major companies such as Enron and WorldCom in the United States, which resulted in the passing of the Public Company Accounting Reform and Investor Protection Act, also known as Sarbanes-Oxley Act in 2002 (Sarbanes-Oxley Act 2002). Similarly, Australia confronted its corporate crises by introducing a set of corporate governance guidelines in 2003 (Australian Securities Exchange (ASX) Corporate Governance Council 2003b).

Corporate crises in the 1980s weakened investor confidence in the Australian capital market. Until then, Australia had weak corporate regulations which impacted negatively on the corporate environment (Barry 1990 ; Clarke 2007). Corporate failures in the 1980s such as the collapse of Rothwells and Qintex and the manipulation of the accounts of GPI Leisure, Spedley Securities, and the scandal of Bond Corporation raised concerns about the governance structure in Australia (Sykes 1994; Tomasic 2001). One of the early responses came from a working group chaired by Henry Bosch, chair of the Australian National Companies and Securities (which later became the Australian

Securities and Investment Commission) (Collett and Hrasky 2005). The group developed guidelines for best practices in corporate governance and encouraged companies to adopt those guidelines. In 1996, the Australian Stock Exchange developed listing rule 4.10 which required companies to include, in their annual reports, a corporate governance statement, detailing corporate governance practices followed during the financial period (Australian Securities Exchange (ASX) Corporate Governance Council 2003b).

The corporate collapses in 2001 of HIH, Harris Scarfe, Ansett, and OneTel had a considerable impact on the refinements of corporate governance in Australia. The corporate crises prompted non-governmental bodies to evaluate corporate governance structures in Australia. The University of Newcastle issued the Horwath Report (2002) which finds that Australian companies misunderstand certain governance practices, such as the independence of the board of directors. The failure of Australia's largest insurer, HIH, prompted the Federal Government in 2003 to appoint a Royal Commission headed by Justice Owen (Owen 2003). The royal commission issued a report stating that weak corporate governance was a major reason for the demise of the large insurer (Owen 2003). Furthermore, the report recommended reforms in corporate governance; however, it did not recommend a legislative response.

In recent years, corporate governance practices have been refined and refocused. In 2001, the Australian Securities and Investment Commission (ASIC) was empowered to regulate investments and securities in addition to enforcing listing rules and the Corporations Act (2001b) (Commonwealth of Australia 2001a). In 2002, the Australian Securities Exchange formed the

Australian Corporate Governance Council. The council issued the Principles of Good Corporate Governance and Best Practice Recommendations (PGCG) in March of 2003 to increase transparency and restore investor confidence (Australian Securities Exchange (ASX) Corporate Governance Council 2003b). The ASX amended the listing rules 4.10 by introducing rule 4.10.3 which required companies to disclose in their annual reports the extent to which they follow PGCG (Australian Securities Exchange (ASX) Corporate Governance Council 2003a). In 2004, the Federal Government implemented the Corporation Law Economic Reform Program (CLERP 9) (Commonwealth of Australia 2004). CLERP 9 addresses issues such as auditor regulation and corporate disclosures (Commonwealth of Australia 2003). In 2006, the ASX Corporate Governance Council released the Review of the Principles of Good Corporate Governance and Best Practice Recommendations (2006), which advocated for the amendment of the PGCG. As a result of the review, the ASX issued the second edition of PGCG, entitled the Corporate Governance Principles and Recommendations (CGPR) in 2007 (Australian Securities Exchange (ASX) Corporate Governance Council 2007b). The CGPR was introduced to reduce the overlapping between the ASX corporate governance recommendations and the Corporations Act and the accounting standards (ASX Corporate Governance Council 2006).

It is noteworthy that the ASX principles and recommendations continue to remain guidelines that companies can elect not to adopt. However, companies must disclose in their annual reports any reason for departing from the principles and recommendations (Australian Securities Exchange (ASX) Corporate Governance Council 2003b).

C.3 ASX CORPORATE GOVERNANCE PRINCIPLES

The PGCG were designed to enhance the competitive standing of Australian companies and to bolster investor confidence (Australian Securities Exchange (ASX) Corporate Governance Council 2003b). The PGCG are suggestive in nature; however companies that choose not to follow the recommendations are expected, under the "if not why not" approach, to explain, in their annual reports, their reasons for not implementing the recommendations (Australian Securities Exchange (ASX) Corporate Governance Council 2003b). Table C.1 presents the ten principles that were presented in the first ASX Corporate Governance Council report in 2003.

Table C.1: Principles of Good Corporate Governance

1. Lay solid foundations for management and oversight
2. Structure the board to add value
3. Promote ethical and responsible decision-making
4. Safeguard integrity in financial reporting
5. Make timely and balanced disclosure
6. Respect the rights of shareholders
7. Recognize and manage risk
8. Encourage enhanced performance
9. Remunerate fairly and responsibly
10. Recognize the legitimate interests of stakeholders

The PGCG were revised in 2007 as a result of a perpetual review process of the core principles and recommendations (Australian Securities Exchange (ASX) Corporate Governance Council 2007a). The following section presents the second edition of the ASX's Principles and Recommendations, which were issued in 2007.

The ASX Corporate Governance Council issued the second edition of the PGCG entitled Corporate Governance Principles and Recommendations (CGPR) in August 2007 (Australian Securities Exchange (ASX) Corporate Governance Council 2007b). The issuance of the latest principles and recommendations came as a response to the Review of the Principles of Good Corporate Governance and Best Practice Recommendations in 2006 (ASX Corporate Governance Council 2006). The result of the review indicated the overlapping of some of the corporate governance recommendations with the amendments to the Corporations Act in CLERP 9 in 2004 and the implementation of the Financial Services Reform Act 2001 (ASX Corporate Governance Council 2006). Additionally, some of the principles and recommendations needed further explaining to resolve ambiguities and to achieve greater consistency (Australian Securities Exchange (ASX) Corporate Governance Council 2007a). Furthermore, the review suggested the restructuring of principles eight and ten along with recommendations from principles four, six, and nine to provide a better understanding of corporate governance practices.

The CGPR adopted the amendments suggested by the review of the Principles of Good Corporate Governance and Best Practice Recommendations. The first edition of PGCG had ten principles and twenty eight

recommendations. Although the number of recommendations remained unchanged in the second edition, the number of principles was reduced from ten to eight principles. Principle eight, which focused on enhancing performance and Principle ten, which concentrated on recognising the legitimate interest of stakeholders, were consolidated with Principles one, two, three, and seven (refer to Table C.1). An additional change to the new Principles and Recommendations included the amendment of Principle three to include all company codes of conduct. One of the noticeable changes in the CGPR focused on the definition of independence in Principle two, which was amended to include a list of independence indicators. In addition, the new edition of Principles and Recommendations clarified the nature of risk management and the risk management process. Finally, the term "best practices" was replaced with "good practices" in the CGPR to indicate that alternative corporate governance practices are not to be viewed as "second best" (ASX Corporate Governance Council 2006). Table C.2 presents the eight principles as they were listed in the second edition of the Corporate Governance Principles and Recommendations (2007b).

Table C.2: Revised Corporate Governance Principles

1. Lay solid foundations for management and oversight
2. Structure the board to add value
3. Promote ethical and responsible decision-making
4. Safeguard integrity in financial reporting
5. Make timely and balanced disclosure
6. Respect the rights of shareholders
7. Recognize and manage risk
8. Remunerate fairly and responsibly

Corporate governance practices in Australia are regarded as guidelines which direct companies towards good corporate governance. In contrast with companies in the United States, where corporate governance practices are mandatory, Australian companies can chose not to implement the ASX corporate governance principles as long as they disclose in their annual reports the reasons for not complying. Appendix D details the corporate governance dimensions that are adopted by this study and links these dimensions to the ASX principles.

APPENDIX D: CORPORATE GOVERNANCE DIMENSIONS AND ELEMENTS

D.1 MANAGEMENT OVERSIGHT

Board independence

Corporate governance research has shown that agency costs are mitigated with the presence of independent directors on the board (Baysinger and Butler 1985). The efficacy of the board of directors is directly linked to its independence from the company's executive management (Dechow et al. 1996). Studies by Beasley (1996) and Beasley, Carcello, Hermanson, and Lapides (2000) investigate the possible relationship between fraud and board characteristics and find a negative association between the independence of the board of directors and the likelihood of fraud occurring in the company. Research by Leftwich, Watts, and Zimmerman (1981) and Ajinkya, Bhojraj, and Sengupta (2005) find a positive relationship between corporate disclosure and board independence.

Duality of the role of board chair and chief executive officer (CEO)

Corporate governance guidelines recognise the negative impact of joining the roles of Chair of Board of Directors and the CEO on the monitoring power of the board of directors (Australian Securities Exchange (ASX) Corporate Governance Council 2003b; Cadbury Committee 1992). Beasley (1996) finds that the ability of the board chair to effectively control and monitor senior management is potentially hindered if that individual is the company

CEO. Daily and Dalton (1994) show that company performance is positively influenced by the separation of the role of CEO and board chairperson. Forker (1992) finds a negative relationship between companies that combine the roles of CEO and board chair and the quality of disclosures. However, studies by Dalton, Daily, Ellerstrand, and Johnson (1998) and Coulton, James, and Taylor (2001) find no relationship between company performance and the separation of the roles of CEO and board chair.

Board size

The size of the board of directors could influence its role in monitoring and controlling management (Jensen 1993). The effect of board size on reducing agency costs remains a debatable issue. Anderson et al. (2004) find that board size is inversely related to cost of debt financing. Research by Yermack (1996), Eisenberg, Sundgren, and Wells (1998), and Chiange (2005) point to a positive relationship between board size and company performance. Other studies present conflicting results regarding the relationship between size and the governing ability of the board of directors (Beasley 1996). Gladstien (1984) and Lipton and Lorsch (1992) conclude that large boards lead to weaker monitoring processes in corporations.

Board meetings

The board of directors can discharge their monitoring and control responsibilities during board meetings. Meetings that are held frequently enable board members to better achieve their stated objectives of supervising and guiding their companies (Kent and Stewart 2008; Vafeas 1999a; Yatim et al. 2006).

Nomination committee

The selection process of board members should be objective in order for the board to conduct its duties of monitoring and controlling the operations of the company (Siladi 2006). The nomination committee is relevant because it recommends the appointment of independent directors on the board. The ASX best practice principles recommend the establishment of a nomination committee (Australian Securities Exchange (ASX) Corporate Governance Council 2003b). Vafeas and Theodorou (1998) argue that a CEO on nomination committees has an adverse effect on stock prices. Vefeas (1999b) finds that not every company should have a nomination committee and that the importance of the committee depends on its available choices of control mechanisms, such as insider ownership.

Remuneration committee

The ninth ASX corporate governance principle recommends that companies establish a remuneration committee (Australian Securities Exchange (ASX) Corporate Governance Council 2003b). Vefeas and Afxentiou (1998) propose that in order for remuneration committees to be effective they should primarily consist of outside directors. Conflicting evidence exists regarding the relationship between remuneration committees and the level of remuneration. Main and Johnston (1993) find that the presence of remuneration committees is positively related to the level of executives' pay, while Conyon and Mallin (1997) indicate a negative relationship between the level of executives' pay and the presence of a remuneration committee.

D.2 FINANCIAL QUALITY

Audit committee independence

Prior research asserts that audit committees function more effectively when members are non-executives (Lynn 1996; Blue Ribbon Committee (BRC) 1999). Research by McMullen and Raghunandan (1996) and Dechow et al., (1996) propose that audit committees should not include any executives and they should be comprised mainly of independent directors. Jiambalvo (1996) finds that audit committee independence is associated with a reduction in financial statement fraud.

Financial expertise of audit committee members

The duties and responsibilities of audit committee members require that they possess experience in finance and accounting. Dezoort (1998) finds that audit committee members with experience in auditing were able to make control evaluation decisions that were consistent with requirements of external auditors. Previous literature in auditing finds that external auditors perceive the information provided by audit committee members who have financial expertise to be more reliable (Knapp 1987; Cohen et al. 2002). Audit committee members with knowledge in accounting or finance are more capable in communicating and cooperating with external auditors than those without financial expertise (Cohen et al. 2004).

Audit committee meetings

Audit committees must interact and liaise with different parties internally and externally in order to achieve their intended purposes of

monitoring and facilitating the financial reporting process. The recurrence of audit committee meetings can be used to gauge the diligence and thoroughness of the committee's members (Farber 2005; Hughes 1999; Collier 1993). A study by Xie, Davidson, and DaDalt (2003) reports a negative relationship between frequency of audit meetings and earnings management. Kent and Stewart (2008) find a positive relationship between the frequency of audit committee meetings and the level of financial disclosures.

Size of audit committee

The number of audit committee members could influence the committee's efficiency and productivity. The Principles of Good Corporate Governance and Best Practice Recommendations suggest a minimum of three members should be appointed to the audit committee (Australian Securities Exchange (ASX) Corporate Governance Council 2003b). Researchers have proposed that larger audit committees have greater authority over the financial reporting process (Kalbers and Fogarty 1993). The number of members should be conducive for the committee to discharge its duties effectively. Karamanou and Vafeas (2005) contend that larger audit committees have a greater knowledge base. However if committees become too large then they lose their ability to carry out their obligations (Karamanou and Vafeas 2005).

Audit committee charter

A charter provides the audit committee with a clear vision of the necessary responsibilities and duties of the committee (Warrick 1999). The Blue Ribbon Committee (1999) considers the presence of an audit committee charter as an important part of the success of the audit committee. The PGCG

recommends companies to have a formal audit committee charter that states the role, structure, and composition of the audit committee (Australian Securities Exchange (ASX) Corporate Governance Council 2003b). Marsh and Powell (1989) suggest that an audit committee charter improves the flow of information between the audit committee, the internal auditor, external auditor, and management. Prior research by Carcello, Hermanson and Neal (2002) finds that audit committees diverge from their intended responsibilities that are set out in the charter. Kalbers and Fogarty (1993) find that a formal audit charter plays a pivotal role in empowering the audit committee.

Identity of the external auditor

The auditor-client relationship is an important corporate governance mechanism. Prior research argued that larger audit companies are more inclined to protect their reputation in the market place (Kim, Chung, and Firth 2003; Francis and Krishnan 1999; Francis, Maydew, and Sparks 1999). Clarkson, Ferguson, and Hall (2003) find a strong association between the use of a Big Six auditor and the level of disclosure. Pittman and Fortin (2004) show that companies audited by a Big Six auditor have a lower cost of debt.

D.3 EQUITY CONTROL

Blockholders

Researchers contest that the presence of blockholders can restrict expropriation of minority shareholders (Fu 2004). Shleifer and Vishny (1997) argue that blockholders have the ability and the incentive to monitor management. Holderness and Sheehan (1985) find that company value increases after a block purchase. Other research finds a possible negative

impact of blockholders on company value (Woidtke 2002). Shleifer and Vishny (1997) state that the presence of blockholders results in the neglect of other stakeholders' interests. Denis (2001) argues that while the presence of blockholders could increase company value, it could also encourage blockholders to seek benefits that are not available to other shareholders.

Insider ownership

Stock ownership by managers and directors can align the interests of both agents and principals. Jensen (1993) finds that insider ownership increased company performance. Other researchers found a non-linear relationship between insider ownership and company value (McConnell and Servaes 1990; McConnell and Servaes 1995; Morck et al. 1988). Kole (1995) suggests that managerial ownership could affect company value differently, depending on company size.

APPENDIX E: CORPORATE GOVERNANCE VARIABLES

E.1 MANAGEMENT OVERSIGHT VARIABLES

Management oversight is represented by the board structure and processes. This includes the independence of the board, separation of the role of CEO and board Chair, board size, number of board meetings, and the presence of a nomination and remuneration committee.

a) Board independence (*INDP)*

Following previous studies by Carcello, Hermanson, Neal and Riley (2002) Ashbaugh-Skaife et al. (2006), Piot and Missonier-Peiera (2007), Kent and Stewart (2008), Anderson et al. (2004) board independence, *INDP*, is measured as the ratio of non-executive independent directors on the board to the total board members.

b) Role separation of board chair and CEO (*DUAL)*

Following research by Beasley (1996), Bugshan (2005), Goodwin and Kent (2006), Kent and Stewart (2008) this study uses the categorical variable, *DUAL*, to proxy for duality of the chair and CEO. The variable is coded one if the role of CEO is separate from the board Chair, and zero otherwise.

c) Board size (*BDSIZE)*

Research by Yatim et al. (2006), Anderson et al., (2004), Yermack (1996), Eisenberg, Sundgren, and Wells (1998), Chiange (2005), Beasley (1996), Gladstien (1984) and Lipton and Lorsch (1992) measure board size as the number of directors on the board. This study uses the variable *BDSIZE* to represent the number of directors on the board.

d) Board meetings (*BDMEET)*

Corporate governance literature uses the number of board meetings to proxy for board effectiveness (Vafeas 1999a; Yatim et al. 2006; Goodwin-Stewart and Kent 2006; Kent and Stewart 2008). The board meeting variable *BDMEET* is represented by the number of board meetings held each year.

e) Nomination and remuneration committees (*NOM) (REM)*

This study follows Vafeas and Theodorou (1998) and Vefeas (1999b) in operationalizing nomination committee. The categorical variable *NOM* is used to represent the presence of a nomination committee. The variable equals one if the company has a nomination committee, and zero otherwise. Following previous empirical research by Vefeas and Afxentiou (1998), Main and Johnston (1993), and Conyon and Mallin (1997), this study uses the categorical variables *REM* to proxy for the presence of a remuneration committee. The variable equals one if the company has a remuneration committee, and zero otherwise.

E.2 FINANCIAL QUALITY VARIABLES

Financial quality is measured by attributes of the audit process, which include the functions of the audit committee and the identity of the external auditor. The audit process is achieved by the presence and independence of the audit committee, financial expertise of audit committee members, audit committee meetings, the size of audit committee, the existence of an audit committee charter, and the identity of the external auditor.

a) Audit committee charter (*AUDCHRT)*

Studies by Kalbers and Fogarty (1993) and Warrick (1999) stress the importance of audit committee charters in providing vision and guidance to the audit committee. This research uses *AUDCHRT* to represent the presence of an audit committee charter. The variable is coded as one if a company has an audit committee charter, and zero otherwise.

b) Audit committee independence *(AUDIND)*

Corporate governance literature measures the independence of audit committees by comparing the number of independent members to the total members in the committee (Klein 2002; Anderson et al. 2004). This study proxies audit committee independence by using the variable *AUDIND*, which is the proportion of non-executive independent members on the audit committee.

c) Financial expertise of audit committee members *(AUDEXP)*

Following previous research by Dezoort (1998), Anderson et al. (2004), and Goodwin-Stewart and Kent (2006), this study measures the financial

expertise of the audit committee, *AUDEXP*, as the proportion of audit committee members with accounting and finance qualifications.

d) Size of audit committee (*AUDSIZE)*

In accordance with studies by Karamanou and Vafeas (2005), Anderson et al. (2004), Goodwin and Kent (2006), and Kalbers and Fogarty (1993), this research measures the variable *AUDSIZE* as the number of members on the audit committee.

e) Audit committee meetings (*AUDMEET)*

Following prior studies in the area of corporate governance, audit committee meetings, *AUDMEET*, are measured by the number of meetings each year (Farber 2005; Hughes 1999; Collier 1993; Anderson et al. 2004).

f) Identity of the external auditor (*AUDITOR)*

Empirical research in the area of corporate governance and the audit process uses a categorical variable to account for the presence of a Big Four, Big Five, or Big Eight audit company (Pittman and Fortin 2004; Kent and Stewart 2008; Goodwin and Kent 2006). Big Four auditors are Deloitte and Touche LLP, Ernst and Young LLP, KPMG LLP, PricewaterhouseCoopers LLP (Francis and Yu 2007). This study measures the presence of a Big Four audit company by using a categorical variable labelled *AUDITOR*. The variable is coded one if the company is audited by a Big Four company, and zero otherwise.

E.3 EQUITY OWNERSHIP VARIABLES

Ownership structure is measured by blockholders, and insider ownership (Bhojraj and Sengupta 2003; Ashbaugh-Skaife et al. 2006).

a) Blockholder (*BLOCK)*

This study uses the variable *BLOCK* to measure blockholders as the percentage of the company's shares owned by investors owning 5 percent of the company's stock. Similar measures are used by Ashbaugh-Skaife et al. (2006), Anderson, et al. (2004), and Brickley, et al. (1988).

b) Insider ownership (*INSIDER)*

Previous research calculates the ratio of shares owned by insiders to the total shares issued by the company (McConnell and Servaes 1990; McConnell and Servaes 1995; Morck et al. 1988). This study uses the variable *INSIDER* to measures insider ownership. The variable is defined as the percentage of company's shares that are owned by executives and officers and directors of the company.

APPENDIX F: EXTENDED DISCUSSION ON DEBT CONTRACTING

F.1 DISCUSSION ON ACCESS TO QUANTITY OF DEBT

The study analyses interest bearing debt for the sampled companies across economic sectors with two-digit Global Industry Classification Standard (GICS) codes. As shown in Table F.1, there are 142 companies from the materials sector that have interest bearing debt which represent 24% of the 595 companies in the main sample. Other economic sectors that report a high employment of interest bearing debt are the industrials and consumer discretionary sectors with 122 and 105 companies respectively. However, the utilities, the telecommunication services, and consumer staples have fewer companies with interest bearing debt relative to other economic sectors with only 2%, 3% and 6% of the companies taking on interest bearing debt respectively.

Table F.1: Number of Companies with Interest Bearing Debt by Economic Sectors

Sector	Number of Companies	%
Consumer Discretionary	105	18
Consumer Staples	33	6
Energy	54	9
Health Care	59	10
Industrials	122	21
Information Technology	52	9
Materials	142	24
Telecommunication Services	17	3
Utilities	11	2
Total	**595**	**100**

The quantities of interest bearing debt across the various economic sectors are shown in Table F.2. The total interest bearing debt for the 595 companies is $125.1 billion. More than 70% of all interest bearing debt can be attributed to the consumer discretionary, industrials and materials sectors. In particular, the consumer discretionary sector accounts for 30.9% of all interest bearing debt. A closer investigation into the consumer discretionary sector reveals that out of the 105 companies in the sector, four companies are responsible for $26.5 billion, or almost 21.2% of the total interest bearing debt. Additionally, a single company within the consumer discretionary sector, News Corporation, is solely responsible for $12.7 billion, or approximately 10.1%, of all interest bearing debt.

Table F.2: Quantity of Interest Bearing Debt by Economic Sectors

Sector	Debt Quantities (Billions)	%
Consumer Discretionary	$38.7	30.9
Consumer Staples	13.2	10.6
Energy	5.6	4.5
Health Care	4.2	3.4
Industrials	28.4	22.7
Information Technology	1.3	1.1
Materials	25.8	20.7
Telecommunication Services	0.1	0.1
Utilities	7.7	6.1
Total	**$125.1**	**100.0**

Several economic sectors in the sample, such as information technology, health care, and energy have lower quantity of interest bearing debt compared to other sectors. A review of the three sectors' total assets reveals that they have low total assets relative to other sectors. Telecommunication services, information technology, and health care sectors represent 0.2%, 1%, and 3%

respectively of the total assets for the 595 companies. As assets are funded by equity and debt, low amounts of assets are an indicator of a relatively lower demand for finance capital. As the sectors' total assets grow, so does their need to acquire debt capital, particularly interest bearing debt.

The study further examines interest bearing data for industry groups with four-digit GICS codes, in an attempt to provide a deeper understanding of the quantity of debt accessed by companies. On an industry group level, the materials and media industries have the two highest quantities of interest bearing debt compared to other industry groups. The materials industry group which is represented by 142 companies comprise 20.7% of all quantities of interest bearing debt. However, the media industry group which makes up 22.8% of all quantity of interest bearing debt is represented by only 26 companies. A closer investigation into the media industry group reveals that a single company, News Corporation, has $12.7 billion of interest bearing debt which is 44% of the total interest bearing debt for the industry group. The quantities of interest bearing debt across industry groups are presented in Table F.3.

Table F.3: Quantities of Interest Bearing Debt by Industry Groups

Industry Group	Companies	Debt Quantities (Billions)	%
Automobiles & Components	8	$0.2	0.1
Capital Goods	67	4.4	3.5
Commercial & Professional Services	38	7.0	5.6
Consumer Durables & Apparel	16	0.8	0.6
Consumer Services	30	6.8	5.4
Energy	54	5.6	4.5
Food and Staples Retailing	4	8.2	6.5
Food, Beverage & Tobacco	29	5.0	4.0
Health Care Equipment & Services	37	3.1	2.5
Materials	142	25.8	20.7
Media	26	28.5	22.8
Pharmaceuticals, Biotech & Life Sciences	23	1.1	0.9
Retailing	24	2.5	2.0
Semiconductors & Semiconductor Equipment	2	0.04	0.04
Software & Services	29	0.9	0.7
Technology Hardware & Equipment	21	0.4	0.3
Telecommunication Services	17	0.1	0.1
Transportation	17	17.0	13.6
Utilities	11	7.7	6.1
Total	**595**	**$125.1**	**100.0**

F.2 DISCUSSION ON ACCESS TO TYPE OF DEBT

Access to types of debt is examined by studying the sources of interest bearing debt as stated in various line items in the annual reports. As shown in Table F.4, the line items are organised into short-term and long-term debt where 78.7% of interest bearing debt is long-term while only 21.3% is short term. Short-term bank loans at $15.6 billion represents 12.4% of total interest bearing debt which makes it the most significant short-term line item. Additionally, at $24.2 billion, long-term bank loans are the most significant line item under long-term debt. Other long-term line items, such as bonds, notes and non-bank debt represent 14%, 16% and 17% of total interest bearing debt respectively. However, bank loans, both short and long term, remain the most accessed line items at approximately 32% of total interest bearing debt.

Table F.4: Interest Bearing Debt by Line Items

Debt Types	Line Items	Debt Quantities (Billions)	%
	Short-Term Debt		
Asset finance debt	Hire purchase liabilities	$0.2	0.14
	Lease liabilities	0.8	0.67
Bank debt	Bank loans	15.6	12.43
	Bank overdrafts	0.9	0.71
Non-bank debt	Non-bank loans	2.6	2.07
	Insurance finance	0.03	0.03
	Trade financing	0.01	0.01
	Bailment	0.5	0.39
	Private equity loans	0.00	0.00
	Loans from other companies	0.04	0.03
	Loans from director	0.2	0.1
Non-intermediated debt	Notes	3.2	2.6
	Bonds	0.9	0.7
	Convertible loan/Notes	0.5	0.4
	Commercial paper	1.3	1.0
	Total Short-Term Debt	**26.7**	**21.3**
	Long-Term Debt		
Asset finance debt	Hire purchase liabilities	0.4	0.3
	Lease liabilities	2.9	2.3
Bank debt	Bank loans	24.2	19.3
	Bank facilities	1.8	1.4
Non-bank debt	Non-bank debt	20.0	16.0
	Loans from other entities	0.6	0.5
	Loans from director / controlled entities	0.1	0.1
	Property loans	0.01	0.01
	Construction loan facilities	0.01	0.01
Non-intermediated debt	Eurobond	1.1	0.9
	US$ convertible loan	0.0	0.0
	Commercial Papers	1.1	0.9
	Convertible notes	2.3	1.9
	Convertible bonds	0.4	0.3
	Redeemable preference shares	0.5	0.4
	Private Placement	2.9	2.3
	Bonds	17.7	14.2
	Notes	22.2	17.8
	Total Long-Term Debt	**98.4**	**78.7**
	Total Debt	**125.1**	**100.0**

F.3 DISCUSSION ON COST OF DEBT

Cost of debt for the main sample is examined across the different economic sectors. As presented in Table F.5, the consumer staples sector has the lowest cost of debt at 7.66% while the information technology sector has the highest of cost of debt at 9.12%. The ANOVA results presented in Table F.6 shows that the means for the two sectors are statistically different. This indicates that companies that operate within food, beverage and household products could be perceived to be less risky than other companies in other economic sectors and hence also pay a lower cost of debt. Typically companies within the information technology, such as software and hardware companies, would have fewer tangible assets to use as collateral relative to other companies and therefore they face higher costs of debt when compared to other economic sectors (Newman, Newman, and Evans 1987).

Table F.5: Cost of Debt by Economic Sectors (%)

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
Consumer Discretionary	105	7.81	7.50	1.78	5.30	17.80
Consumer Staples	33	7.66	7.34	1.25	5.41	10.59
Energy	54	8.38	8.33	2.29	2.30	17.07
Health Care	59	8.36	7.95	3.21	3.00	24.03
Industrials	122	8.17	7.74	1.88	4.83	15.67
Information Technology	52	9.12	8.93	2.59	4.00	19.03
Materials	142	7.99	7.99	1.87	1.05	13.00
Telecommunication Services	17	9.05	8.65	3.64	0.90	19.52
Utilities	11	7.71	6.90	2.05	6.10	12.00
Total	**595**					

Table F.6: ANOVA Results for the Consumer Staples and Information Technology Sectors

Variable	Mean: Consumer Staples	Mean: Information Technology	F Statistic	P value
COST	7.66	9.12	7.716	**0.007*** **

Notes:
*** Significant at 1%, two-tailed.

Table F.7 provides further details on cost of debt at an industry group level. The semiconductors and equipment, retailing, automobiles and components, food and staples industry groups contracted the lowest cost of debt at 6.92%, 7.52%, 7.60%, and 7.64% respectively. The software and services, telecommunications services, commercial and professional services, technology hardware and equipment industry groups on average pay the highest cost of debt at 9.59%, 9.05%, 8.80%, and 8.68% respectively.

Table F.7: Cost of Debt by Industry Groups (%)

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
Automobiles & Components	8	7.60	7.11	1.20	6.73	10.35
Capital Goods	67	7.94	7.80	1.37	4.83	13.36
Commercial & Professional Services	38	8.80	8.23	2.50	5.69	15.67
Consumer Durables & Apparel	16	8.02	7.48	1.92	5.69	13.90
Consumer Services	30	8.08	7.69	2.20	5.30	17.80
Energy	54	8.38	8.33	2.29	2.30	17.07
Food & Staples Retailing	4	7.64	6.68	1.97	6.59	10.59
Food, Beverage & Tobacco	29	7.66	7.35	1.17	5.41	9.85
Health Care Equipment & Services	37	8.48	7.95	3.05	4.90	24.03
Materials	142	7.99	7.99	1.87	1.05	13.00
Media	27	7.70	7.25	1.92	5.77	15.92
Pharmaceuticals, Biotech & Sciences	22	8.16	7.83	3.52	3.00	20.46
Retailing	24	7.52	7.53	1.01	5.50	10.31
Semiconductors & Equipment	2	6.92	6.92	1.01	6.21	7.64
Software & Services	29	9.59	9.02	2.81	5.30	19.03
Technology Hardware & Equipment	21	8.68	8.72	2.24	4.00	12.15
Telecommunication Services	17	9.05	8.65	3.64	0.90	19.52
Transportation	17	7.66	7.34	1.75	5.45	13.00
Utilities	11	7.71	6.90	2.05	6.10	12.00
Total	**595**					

The cost of debt across the four debt type variables is shown in Table F.8. BANK, on average pays the lowest cost of debt at 7.76% while NONINT, on average faces the highest cost of debt at 8.42%. The study conducts an ANOVA test and finds that the means for cost of debt across the four debt type variables are significantly different as reported in Table F.9. Additionally, Tukey's HSD post hoc test, presented in Table F.10, shows that the cost of debt means for BANK and NONINT are significantly different from other debt types.

Table F.8: Cost of Debt by Debt Types (%)

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
ASFIN	404	8.13	7.92	1.97	1.05	26.21
BANK	295	7.76	7.60	1.52	4.12	17.80
NONBANK	237	8.20	7.92	2.48	2.11	18.00
NONINT	182	8.42	7.98	2.91	1.00	22.38

The low cost of debt for BANK could be partly attributed to the relationship that usually develops between companies and banks which is known as relationship banking (Berger and Udell 2002; Diamond 1991). It is not uncommon for companies that develop a good relationship with their banking institutions to receive preferential treatment which could influence the cost of debt. However, the high cost of debt for NONINT is reflective of the perceived risk associated with lending without intermediation. The presence of information asymmetry in non-intermediated debt is a risk component that influences cost of debt.

Table F.9: ANOVA Results for Cost of Debt by Debt Types

	Mean (%)					
Variable	ASFIN	BANK	NONBANK	NONINT	F Statistic	P value
COST	8.13	7.76	8.20	8.42	3.897	**0.009*** **

Notes:
*** Significant at 1%, two-tailed.

Table F.10: Results of Tukey's HSD Post Hoc Test for Cost of Debt by Debt Types

Variables	Type (A)	Type (B)	Mean Difference (A-B)	Standard Error	Significance
COST	ASFIN	BANK	0.363	0.166	0.126
		NONBANK	-0.076	0.177	0.973
		NONINT	-0.293	0.193	0.428
	BANK	ASFIN	-0.363	0.166	0.126
		NONBANK	-0.440	0.189	0.092
		NONINT	**-0.656*** **	0.204	0.007
	NONBANK	ASFIN	0.076	0.177	0.973
		BANK	0.440	0.189	0.092
		NONINT	-0.216	0.213	0.741
	NONINT	ASFIN	0.293	0.193	0.428
		BANK	**0.656*** **	0.204	0.007
		NONBANK	0.216	0.213	0.741

Notes:
*** Significant at 1%, two-tailed.

APPENDIX G: SUMMARY STATISTICS FOR ALL QUINTILES FOR MAIN SAMPLE

This section provides the complete summary statistics for the five size quintiles in the main sample which represents 595 companies. Additionally, it shows the Tukey's HSD post hoc test results for the different dependent, independent and control variables that are used in the study.

Table G.1: Summary Statistics for Quantity of Debt Accessed for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
QUANT	595	0.39	0.39	0.26	0.00	0.97
			Small Companies (1st Quintile)			
QUANT	119	0.36	0.30	0.28	0.00	0.94
			Medium Companies (2nd Quintile)			
QUANT	119	0.36	0.32	0.25	0.01	0.97
			Medium Companies (3rd Quintile)			
QUANT	119	0.34	0.32	0.26	0.00	0.97
			Medium Companies (4th Quintile)			
QUANT	119	0.45	0.47	0.24	0.00	0.93
			Large Companies (5th Quintile)			
QUANT	119	0.47	0.50	0.26	0.00	0.94

Table G.2: Results of Tukey's HSD Post Hoc Test for Quantity of Debt Accessed

Variables	Size (A)	Size (B)	Mean Difference (A-B)	Standard Error	Significance
QUANT	Small	Medium	0.014	0.035	0.914
		Large	**-0.113*****	0.035	0.004
	Medium	Small	-0.014	0.035	0.914
		Large	**-0.127*****	0.035	0.001
	Large	Small	**0.113*****	0.035	0.004
		Medium	**0.127*****	0.035	0.001

Notes:
*** Significant at 1%, two-tailed.

Table G.3: Summary Statistics for Access to the Four Debt Types for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
ASFIN	595	0.27	0.03	0.40	0.00	1.00
BANK	595	0.33	0.01	0.41	0.00	1.00
NONBANK	595	0.19	0.00	0.35	0.00	1.00
NONINT	595	0.20	0.00	0.35	0.00	1.00
			Small Companies (1st Quintile)			
ASFIN	119	0.42	0.09	0.47	0.00	1.00
BANK	119	0.11	0.00	0.28	0.00	1.00
NONBANK	119	0.27	0.00	0.41	0.00	1.00
NONINT	119	0.20	0.00	0.38	0.00	1.00
			Medium Companies (2nd Quintile)			
ASFIN	119	0.32	0.05	0.42	0.00	1.00
BANK	119	0.30	0.00	0.42	0.00	1.00
NONBANK	119	0.16	0.00	0.33	0.00	1.00
NONINT	119	0.22	0.00	0.38	0.00	1.00
			Medium Companies (3rd Quintile)			
ASFIN	119	0.33	0.07	0.41	0.00	1.00
BANK	119	0.31	0.00	0.41	0.00	1.00
NONBANK	119	0.18	0.00	0.33	0.00	1.00
NONINT	119	0.18	0.00	0.34	0.00	1.00
			Medium Companies (4th Quintile)			
ASFIN	119	0.21	0.04	0.32	0.00	1.00
BANK	119	0.46	0.34	0.43	0.00	1.00
NONBANK	119	0.19	0.00	0.33	0.00	1.00
NONINT	119	0.14	0.00	0.31	0.00	1.00
			Large Companies (5th Quintile)			
ASFIN	119	0.09	0.00	0.23	0.00	1.00
BANK	119	0.48	0.49	0.41	0.00	1.00
NONBANK	119	0.18	0.00	0.32	0.00	1.00
NONINT	119	0.25	0.00	0.36	0.00	1.00

Table G.4: Results of Tukey's HSD Post Hoc Test for Asset Financed Debt and Bank Debt

Variables	Size (A)	Size (B)	Mean Difference (A-B)	Standard Error	Significance
ASFIN	Small	Medium	0.090	0.050	.165
		Large	**0.328*****	0.050	.000
	Medium	Small	-0.090	0.050	.165
		Large	**0.238*****	0.050	.000
	Large	Small	**-0.328*****	0.050	.000
		Medium	**-0.238*****	0.050	.000
BANK	Small	Medium	**-0.196*****	0.048	.000
		Large	**-0.363*****	0.048	.000
	Medium	Small	**0.196*****	0.048	.000
		Large	**-0.167*****	0.048	.002
	Large	Small	**0.363*****	0.048	.000
		Medium	**0.167*****	0.048	.002

Notes:
*** Significant at 1%, two-tailed.

Table G.5: Summary Statistics for Cost of Debt for All Quintiles (%)

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
All companies						
COST	595	8.17	7.85	2.20	0.90	24.03
Small Companies (1st Quintile)						
COST	119	9.08	8.55	2.45	4.00	24.03
Medium Companies (2nd Quintile)						
COST	119	8.54	8.35	2.33	0.90	19.52
Medium Companies (3rd Quintile)						
COST	119	8.33	8.02	2.14	2.30	20.46
Medium Companies (4th Quintile)						
COST	119	7.79	7.52	1.77	2.45	15.92
Large Companies (5th Quintile)						
COST	119	7.12	7.04	1.70	1.05	17.80

Table G.6: Results of Tukey's HSD Post Hoc Test for Cost of Debt

Variables	Size (A)	Size (B)	Mean Difference (A-B)	Standard Error	Significance
COST	Small	Medium	**0.745****	0.275	0.019
		Large	**1.962*****	0.275	0.000
	Medium	Small	**-0.745****	0.275	0.019
		Large	**1.217*****	0.275	0.000
	Large	Small	**-1.962*****	0.275	0.000
		Medium	**-1.217*****	0.275	0.000

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

Table G.7: Summary Statistics for the Independent variables for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
GOV	595	8.19	9.00	3.59	0.00	14.00
ZSCORE	595	0.49	0.75	1.46	-3.73	4.58
ACCRL	205	0.50	0.29	0.58	0.04	3.07
			Small Companies (1st Quintile)			
GOV	119	5.41	6.00	2.97	0.00	11.00
ZSCORE	119	1.64	1.46	0.95	-2.89	4.58
ACCRL	41	0.87	0.67	0.72	0.14	3.07
			Medium Companies (2nd Quintile)			
GOV	119	6.40	6.00	3.27	0.00	13.00
ZSCORE	119	0.88	1.10	1.29	-3.42	4.10
ACCRL	41	0.66	0.34	0.76	0.07	2.69
			Medium Companies (3rd Quintile)			
GOV	119	8.09	9.00	2.96	0.00	14.00
ZSCORE	119	0.30	0.46	1.49	-3.73	2.52
ACCRL	41	0.35	0.28	0.33	0.07	1.81
			Medium Companies (4th Quintile)			
GOV	119	10.24	11.00	2.62	2.00	14.00
ZSCORE	119	-0.09	-0.29	1.44	-2.80	4.11
ACCRL	41	0.38	0.26	0.43	0.09	2.50
			Large Companies (5th Quintile)			
GOV	119	10.82	12.00	2.71	2.00	14.00
ZSCORE	119	-0.28	-0.43	1.182	-2.87	3.35
ACCRL	41	0.24	0.19	0.25	0.04	1.41

A discriminant analysis is performed on 46 failed and 71 non-failed companies in Australia. Table G.8 presents the coefficients for the estimated parameters that are used in the Z-score model.

Table G.8: Discriminant Analysis Results for Default Risk (ZSCORE)

Variable	Canonical Discriminant Function Coefficients
Constant	-0.380
X1	0.159
X2	2.049
X3	3.061
X4	-2.912
X5	1.091

Notes:
X1 = Working capital divided by total assets
X2 = Retained earnings divided by total assets
X3 = Earnings before interest and tax divided by total assets
X4 = Book value of total debt divided by total assets
X5 = Sales divided by total assets

The following is the function used to estimate ZSCORE:

$$ZSCORE_i = -0.38 + 0.159X_1 + 2.049X_2 + 3.061X_3 - 2.912X_4 + 1.091X_5 \quad \text{(G.1)}$$

Where:

$ZSCORE_i$ = Default risk score.

X_1 = Working capital/Total assets

X_2 = Retained earnings/Total assets

X_3 = Earnings before interest and taxes/Total assets

X_4 = Book value of total debt/Total assets

X_5 = Sales/Total assets

The model was able to correctly classify 82.1% of the original grouped cases.

A decomposition of the ZSCORE presented in Table G.9 reveals that it is mainly driven by debt to asset and sales to asset ratios. The decomposition is conducted by multiplying each of the five ratios by their respective coefficients then dividing the outcome by the total ZSCORE.

Table G.9: Decomposition of ZSCORE

Variable	Canonical Discriminant Function Coefficients	Average weight of each ratio
Constant	-0.380	0.311
X1	0.159	-0.085
X2	2.049	-0.060
X3	3.061	0.085
X4	-2.912	1.550
X5	1.091	-0.801

It can be noted from Table G.9 that X4, debt to asset ratio, accounts for 155% of the ZSCORE and therefore it is the primary driving factor behind the overall default risk variable. As a result, companies with a high debt to asset ratio will receive a higher ZSCORE which means they have a higher default risk. Additionally, X5, sales to total assets, also has a significant impact on ZSCORE with an average weight of -80% of the total Z-score. Consequently, companies with greater sales to total assets will have a lower ZSCORE and hence a lower default risk.

Table G.10: Results of Tukey's HSD Post Hoc Test for the Independent Variables

Variables	Size (A)	Size (B)	Mean Difference (A-B)	Standard Error	Significance
GOV	Small	Medium	**-2.681*****	0.374	.000
		Large	**-5.412*****	0.374	.000
	Medium	Small	**2.681*****	0.374	.000
		Large	**-2.731*****	0.374	.000
	Large	Small	**5.412*****	0.374	.000
		Medium	**2.731*****	0.374	.000
ACCRL	Small	Medium	**0.397*****	0.088	.000
		Large	**0.497*****	0.088	.000
	Medium	Small	**-0.397*****	0.088	.000
		Large	.100	0.088	.491
	Large	Small	**-0.497*****	0.088	.000
		Medium	-.100	0.088	.491
ZSCORE	Small	Medium	**1.334*****	0.159	.000
		Large	**1.915*****	0.159	.000
	Medium	Small	**-1.334*****	0.159	.000
		Large	**0.580*****	0.159	.001
	Large	Small	**-1.915*****	0.159	.000
		Medium	**-0.580*****	0.159	.001

Notes:
*** Significant at 1%, two-tailed.

Table G.11: Summary Statistics for the Control Variables for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
AGE	595	19.98	15.00	18.33	1.00	124.00
COLLT	595	0.33	0.26	0.29	0.00	1.18
SIZE	595	7.78	7.67	0.93	5.71	10.87
			Small Companies (1st Quintile)			
AGE	119	13.92	10.00	10.91	1.00	54.00
COLLT	119	0.25	0.16	0.26	0.00	1.07
SIZE	119	6.62	6.75	0.32	5.71	7.01
			Medium Companies (2nd Quintile)			
AGE	119	18.06	13.00	16.52	1.00	101
COLLT	119	0.23	0.16	0.23	0.00	0.87
SIZE	119	7.24	7.25	0.115	7.02	7.44
			Medium Companies (3rd Quintile)			
AGE	119	18.36	16.00	13.63	1.00	94.00
COLLT	119	0.36	0.24	0.32	0.00	1.18
SIZE	119	7.67	7.67	0.13	7.45	7.90
			Medium Companies (4th Quintile)			
AGE	119	21.54	16.00	19.51	1.00	121.00
COLLT	119	0.38	0.32	0.28	0.00	1.07
SIZE	119	8.18	8.18	0.20	7.20	8.49
			Large Companies (5th Quintile)			
AGE	119	28.04	20.00	24.92	1.00	124.00
COLLT	119	0.44	0.41	0.30	0.00	1.08
SIZE	119	9.20	9.10	0.53	8.49	10.87

Table G.12: Results of Tukey's HSD Post Hoc Test for the Control Variables

Variables	Size (A)	Size (B)	Mean Difference (A-B)	Standard Error	Significance
AGE	Small	Medium	-4.437	2.277	.127
		Large	**-14.118*****	2.277	.000
	Medium	Small	4.437	2.277	.127
		Large	**-9.681*****	2.277	.000
	Large	Small	**14.118*****	2.277	.000
		Medium	**9.681*****	2.277	.000
COLLT	Small	Medium	**-0.102****	0.038	.020
		Large	**-0.188*****	0.038	.000
	Medium	Small	**0.102****	0.038	.020
		Large	-0.086	0.038	.063
	Large	Small	**0.188*****	0.038	.000
		Medium	0.086	0.038	.063

Notes:
***, ** Significant at 1%, 5%, two-tailed.

APPENDIX H: SUMMARY STATISTICS FOR ALL QUINTILES FOR SUB-SAMPLE

This section provides the complete summary statistics for the five size quintiles in the sub-sample which represents 205 companies.

Table H.1: Sub-sample Summary Statistics for Quantity of Debt Accessed for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
QUANT	205	0.43	0.44	0.25	0.00	0.97
			Small Companies (1st Quintile)			
QUANT	41	0.38	0.30	0.27	0.01	0.97
			Medium Companies (2nd Quintile)			
QUANT	41	0.39	0.43	0.26	0.01	0.77
			Medium Companies (3rd Quintile)			
QUANT	41	0.44	0.52	0.25	0.03	0.86
			Medium Companies (4th Quintile)			
QUANT	41	0.40	0.46	0.25	0.00	0.88
			Large Companies (5th Quintile)			
QUANT	41	0.51	0.52	0.21	0.00	0.86

Table H.2: Sub-sample Summary Statistics for Access to the Four Debt Types for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
ASFIN	205	0.21	0.03	0.35	0.00	1.00
BANK	205	0.38	0.23	0.41	0.00	1.00
NONBANK	205	0.19	0.00	0.32	0.00	1.00
NONINT	205	0.22	0.00	0.34	0.00	1.00
			Small Companies (1st Quintile)			
ASFIN	41	0.32	0.05	0.43	0.00	1.00
BANK	41	0.28	0.00	0.40	0.00	1.00
NONBANK	41	0.20	0.00	0.33	0.00	1.00
NONINT	41	0.21	0.00	0.36	0.00	1.00
			Medium Companies (2nd Quintile)			
ASFIN	41	0.29	0.06	0.39	0.00	1.00
BANK	41	0.25	0.00	0.39	0.00	1.00
NONBANK	41	0.23	0.00	0.33	0.00	1.00
NONINT	41	0.23	0.00	0.37	0.00	1.00
			Medium Companies (3rd Quintile)			
ASFIN	41	0.23	0.07	0.32	0.00	1.00
BANK	41	0.47	0.40	0.41	0.00	1.00
NONBANK	41	0.16	0.00	0.28	0.00	1.00
NONINT	41	0.14	0.00	0.29	0.00	1.00
			Medium Companies (4th Quintile)			
ASFIN	41	0.18	0.01	0.31	0.00	1.00
BANK	41	0.49	0.49	0.42	0.00	1.00
NONBANK	41	0.20	0.02	0.33	0.00	1.00
NONINT	41	0.13	0.00	0.30	0.00	1.00
			Large Companies (5th Quintile)			
ASFIN	41	0.04	0.00	0.14	0.00	1.00
BANK	41	0.42	0.46	0.37	0.00	1.00
NONBANK	41	0.16	0.00	0.32	0.00	1.00
NONINT	41	0.38	0.31	0.36	0.00	1.00

Table H.3: Sub-sample Summary Statistics for Cost of Debt for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
All companies						
COST	205	8.04	7.51	2.43	1.05	20.46
Small Companies (1st Quintile)						
COST	41	9.38	8.78	2.72	5.60	19.52
Medium Companies (2nd Quintile)						
COST	41	8.91	8.13	2.92	5.96	20.46
Medium Companies (3rd Quintile)						
COST	41	7.78	7.47	1.63	6.03	15.92
Medium Companies (4th Quintile)						
COST	41	7.35	7.25	2.34	1.05	17.80
Large Companies (5th Quintile)						
COST	41	6.77	6.67	1.09	4.49	10.84

Table H.4: Sub-sample Summary Statistics for the Independent Variable for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
GOV	205	9.51	11.00	3.16	1.00	14.00
ACCRL	205	0.45	0.29	0.46	0.04	2.50
ZSCORE	205	-0.01	-0.16	1.36	-2.81	3.32
			Small Companies (1st Quintile)			
GOV	41	6.90	7.00	3.10	1.00	12.00
ACCRL	41	0.75	0.61	0.53	0.14	2.20
ZSCORE	41	1.22	1.38	1.105	-2.35	3.32
			Medium Companies (2nd Quintile)			
GOV	41	8.02	9.00	2.95	2.00	13.00
ACCRL	41	0.51	0.37	0.49	0.07	2.3
ZSCORE	41	-0.11	-0.11	1.46	-2.81	2.52
			Medium Companies (3rd Quintile)			
GOV	41	10.34	11.00	2.39	5.00	14.00
ACCRL	41	0.36	0.27	0.36	0.07	1.81
ZSCORE	41	-0.13	-0.16	1.40	-2.80	2.77
			Medium Companies (4th Quintile)			
GOV	41	11.15	11.00	1.82	6.00	14.00
ACCRL	41	0.40	0.28	0.43	0.09	2.50
ZSCORE	41	-0.57	-0.77	1.14	-2.65	2.04
			Large Companies (5th Quintile)			
GOV	41	11.10	12.00	2.90	2.00	14.00
ACCRL	41	0.26	0.19	0.26	0.04	1.41
ZSCORE	41	-0.45	-0.45	0.90	-2.04	2.08

Table H.5: Sub-sample Summary Statistics for the Control Variables for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
AGE	205	28.67	23.00	21.18	2.00	124.00
COLLT	205	0.43	0.37	0.31	0.00	1.18
SIZE	205	8.22	8.08	0.97	6.07	10.87
			Small Companies (1st Quintile)			
AGE	41	21.56	17.00	17.23	2.00	101.00
COLLT	41	0.37	0.29	0.28	0.00	1.07
SIZE	41	6.99	7.08	0.386	6.07	7.41
			Medium Companies (2nd Quintile)			
AGE	41	25.95	23.00	15.50	9.00	94.00
COLLT	41	0.45	0.36	0.36	0.01	1.18
SIZE	41	7.63	7.66	0.11	7.42	7.79
			Medium Companies (3rd Quintile)			
AGE	41	24.80	22.00	16.13	10.00	99.00
COLLT	41	0.41	0.37	0.26	0.04	0.94
SIZE	41	8.08	8.08	0.18	7.80	8.43
			Medium Companies (4th Quintile)			
AGE	41	34.02	24.50	24.99	8.00	98.00
COLLT	41	0.46	0.39	0.30	0.04	1.08
SIZE	41	8.71	8.70	0.21	8.43	9.10
			Large Companies (5th Quintile)			
AGE	41	37.02	29.00	26.29	4.00	124.00
COLLT	41	0.45	0.41	0.32	0.00	1.06
SIZE	41	9.69	9.62	0.41	9.14	10.87

Table H.6: ANOVA Results for the Variables in the Sub-sample

Variable	Mean			F Statistic	P value
	Small	Medium	Large		
QUANT	0.38	0.44	0.51	3.025	**0.05****
ASFIN	0.32	0.23	0.04	8.192	**0.000*****
BANK	0.28	0.47	0.42	2.519	0.085
NONBANK	0.20	0.16	0.16	0.173	0.840
NONINT	0.21	0.14	0.38	5.374	**0.006*****
COST	9.38	7.78	6.76	18.010	**0.000*****
GOV	6.90	10.34	11.10	25.611	**0.000*****
ACCRL	0.75	0.36	0.26	17.919	**0.000*****
ZSCORE	1.22	-0.13	-0.45	24.044	**0.000*****
AGE	21.56	24.80	37.02	6.553	**0.000*****
COLLT	0.37	0.41	0.45	0.844	0.432

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

Table H.7: Tukey's HSD Post Hoc Test Results for the Variables in the Sub-Sample

Variables	Size (A)	Size (B)	Mean Difference (A-B)	Standard Error	Significance
QUANT	Small	Medium	-0.06	0.053	0.487
		Large	**-0.131****	0.053	0.041
	Medium	Small	0.06	0.053	0.487
		Large	-0.07	0.053	0.392
	Large	Small	**0.131****	0.053	0.041
		Medium	0.07	0.053	0.392
ASFIN	Small	Medium	0.08	0.070	0.468
		Large	**0.277*****	0.070	0.000
	Medium	Small	-0.08	0.070	0.468
		Large	**0.194****	0.070	0.018
	Large	Small	**-0.277*****	0.070	0.000
		Medium	**-0.194****	0.070	0.018
NONINT	Small	Medium	0.07	0.074	0.637
		Large	-0.17	0.074	0.063
	Medium	Small	-0.07	0.074	0.637
		Large	**-0.236*****	0.074	0.005
	Large	Small	0.17	0.074	0.063
		Medium	**0.236*****	0.074	0.005
COST	Small	Medium	**1.595*****	0.427	0.001
		Large	**2.615*****	0.427	0.000
	Medium	Small	**-1.595*****	0.427	0.001
		Large	**1.019****	0.427	0.049
	Large	Small	**-2.615*****	0.427	0.000
		Medium	**-1.019****	0.427	0.049
GOV	Small	Medium	**-3.441*****	0.624	0.000
		Large	**-4.198*****	0.624	0.000
	Medium	Small	**3.441*****	0.624	0.000
		Large	-0.756	0.620	0.444
	Large	Small	**4.198*****	0.624	0.000
		Medium	0.756	0.620	0.444
ACCRL	Small	Medium	**0.397*****	0.088	0.000
		Large	**0.497*****	0.088	0.000
	Medium	Small	**-0.397*****	0.088	0.000
		Large	0.100	0.088	0.491
	Large	Small	**-0.497*****	0.088	0.000
		Medium	-0.100	0.088	0.491
ZSCORE	Small	Medium	**-0.528*****	0.107	0.000
		Large	**-0.630*****	0.107	0.000
	Medium	Small	**0.528*****	0.107	0.000
		Large	-0.100	0.107	0.605
	Large	Small	**0.630*****	0.107	0.000
		Medium	0.100	0.107	0.605
AGE	Small	Medium	-3.24	4.505	0.752
		Large	**-15.463*****	4.505	0.002
	Medium	Small	3.24	4.505	0.752
		Large	**-12.220****	4.505	0.021
	Large	Small	**15.463*****	4.505	0.002
		Medium	**12.220****	4.505	0.021

Notes:
***, ** Significant at 1%, 5%, two-tailed respectively.

Table H.8: Calculation Results for the Accruals Quality Variable (ACCRL)

$$\Delta WCA_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} - \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} - \beta_4 \Delta REV_{i,t} + \beta_5 PPE_{i,t} + \varepsilon_t$$

Variables	$\Delta WCA_{i,2003}$	$\Delta WCA_{i,2004}$	$\Delta WCA_{i,2005}$	$\Delta WCA_{i,2006}$	$\Delta WCA_{i,2007}$
Intercept	0.001	0.001	-0.001	0.001	-0.001
	(0.147)	(0.844)	(-0.825)	(0.412)	(-0.101)
$CFO_{i,2002}$	**0.275*****				
	(4.942)				
$CFO_{i,2003}$	**-0.210*****	0.023			
	(-3.351)	(0.786)			
$CFO_{i,2004}$	**0.270*****	-0.073	**0.275*****		
	(4.206)	(-0.493)	(3.964)		
$CFO_{i,2005}$		-1.448	**-0.151****	**-0.295*****	
		(-0.149)	(-1.832)	(-3.151)	
$CFO_{i,2006}$			**-0.670*****	**0.230****	**0.390*****
			(-9.488)	(1.925)	(-3.850)
$CFO_{i,2007}$				-0.098	-0.125
				(-1.264)	(-1.268)
$CFO_{i,2008}$					**0.413****
					(4.649)
$\Delta REV_{i,t}$					
	0.682***	1.103	**0.143****	**0.272*****	**0.299****
	(13.552)	(0.271)	(2.534)	(3.504)	(-3.524)
$PPE_{i,t}$	-0.719	0.550	**-0.099****	**0.047****	0.041
	(0.473)	(0.583)	(-0.1753)	(0.482)	(0.631)
Adjusted R^2	**0.476**	**0.016**	**0.458**	**0.120**	**0.128**
Sample	213	213	213	213	213

Note:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.

$\Delta WCA_{i,t}$ = Change in current assets - change in cash - change in current liabilities + change in short-term debt.

$CFO_{i,t}$ = Cash flow from operations for the ith firm in year t.

$\Delta REV_{i,t}$ = Change in revenue for the ith firm in year t.

$PPE_{i,t}$ = Property, plant, and equipment for the ith company for year t.

ε_t = Firm specific residual for the ith company for year t.

APPENDIX I: MULTICOLLINEARITY TEST

The study provides the results of the variance inflation factor for the independent variables.

Table I.1: Variance Inflation Factor for Independent and Control Variables

Variable	Tolerance	VIF
GOV	0.761	1.486
ACCRL	0.689	1.276
ZSCORE	0.703	1.358
AGE	0.375	1.273
COLLT	0.451	1.222
SIZE	0.597	1.730

APPENDIX J: HYPOTHESES TESTS

Table J.1: Relationship between Default risk and the Debt Contracting Variables Including Industry Dummies

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**-0.283****	**1.312*****	-0.302	**0.545****	**-0.555*****	**11.753*****
	(-2.007)	(7.781)	(-1.337)	(2.357)	(-3.018)	(9.960)
ZSCORE	**0.065*****	**-0.056*****	**-0.040*****	**0.042*****	**0.054*****	**0.317*****
	(-7.911)	(4.695)	(3.067)	(-3.970)	(-4.814)	(-4.655)
AGE	0.0004	**-0.003*****	0.001	0.001	0.001	0.002
	(0.751)	(-4.335)	(1.111)	(1.135)	(1.066)	(0.320)
COLLT	**0.150*****	0.068	-0.071	0.011	-0.007	0.009
	(4.058)	(1.206)	(-1.189)	(0.229)	(-0.136)	(0.030)
SIZE	**0.072*****	**-0.134*****	**0.083*****	-0.013	**0.064*****	**-0.501*****
	(5.426)	(-7.956)	(3.925)	(-0.657)	(3.414)	(-4.542)
CON	0.076	-0.032	0.017	**-0.251***	**0.266*****	-0.012
	(0.882)	(-0.431)	(0.129)	(-1.694)	(2.788)	(-0.017)
STP	0.107	-0.099	0.112	-0.245	**0.232****	-0.227
	(1.172)	(-1.299)	(0.794)	(-1.584)	(2.179)	(-0.308)
EGY	0.039	0.052	0.033	**-0.343****	**0.259*****	0.155
	(0.442)	(0.632)	(0.251)	(-2.301)	(2.566)	(0.225)
HTH	0.045	0.064	0.001	**-0.336****	**0.271*****	-0.055
	(0.500)	(0.731)	(0.010)	(-2.222)	(2.664)	(-0.078)
IND	0.049	0.061	0.092	**-0.310****	**0.157***	0.419
	(0.566)	(0.830)	(0.725)	(-2.112)	(1.733)	(0.629)
IT	-0.023	-0.034	0.017	-0.221	**0.237****	**1.139***
	(-0.263)	(-0.414)	(0.127)	(-1.419)	(2.337)	(1.605)
MAT	-0.031	**0.220*****	-0.089	**-0.309****	**0.178****	-0.222
	(-0.365)	(2.933)	(-0.704)	(-2.106)	(1.950)	(-0.335)
TLS	-0.106	0.073	0.004	**-0.340****	**0.263****	-0.023
	(-1.124)	(0.574)	(0.028)	(-1.988)	(2.056)	(-0.027)
Adjusted R^2	**0.153**	**0.148**	**0.104**	**0.037**	**0.042**	**0.133**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between debt contracting variables and default risk, where ZSCORE is the proxy for default risk. The t-values, given in parenthesis

below each estimate are corrected for heteroskedasticity. The new variables in the regression estimate are defined as follows:

$TYPE_R$ = Access to type of debt where *R* refers to the following debt types:

ASFIN	=	Asset finance debt divided by total interest bearing debt.
BANK	=	Bank debt divided by total interest bearing debt.
NONBANK	=	Non-bank debt divided by total interest bearing debt.
NONINT	=	Non-intermediated debt divided by total interest bearing debt.

Table J.2: Relationship between Information Risk and the Debt Contracting Variables Including Industry Dummies

$$QUANT_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.261	**0.594***	-0.096	**0.919*****	-0.417	**14.589*****
	(1.095)	(1.936)	(-0.257)	(2.709)	(-1.263)	(8.752)
ACCRL	-0.026	0.072	-0.077	0.002	0.004	**0.824****
	(-0.627)	(1.331)	(-1.174)	(0.031)	(0.066)	(2.035)
AGE	-0.001	-0.002	**0.003***	-0.0001	-0.001	-0.002
	(-0.794)	(-1.294)	(1.768)	(-0.052)	(-0.760)	(-0.380)
COLLT	0.086	**0.257*****	**-0.214****	-0.068	0.025	-0.724
	(1.394)	(3.227)	(-2.200)	(-1.131)	(0.286)	(-1.364)
SIZE	0.026	**-0.089*****	0.028	-0.014	**0.074****	**-0.724*****
	(1.247)	(-3.254)	(0.852)	(-0.488)	(2.538)	(-4.250)
CON	-0.062	0.270	0.272	**-0.594*****	0.051	**-0.936***
	(-0.469)	(1.576)	(1.303)	(-2.637)	(0.277)	(-1.785)
STP	0.030	0.100	0.251	**-0.432***	0.082	**-0.909***
	(0.211)	(0.543)	(1.119)	(-1.829)	(0.412)	(-1.958)
EGY	0.002	0.198	**0.450***	**-0.752*****	0.104	1.169
	(0.012)	(0.991)	(1.846)	(-3.426)	(0.484)	(0.951)
HTH	-0.032	0.095	0.335	**-0.565****	0.134	-0.706
	(-0.231)	(0.532)	(1.538)	(-2.407)	(0.694)	(-0.930)
IND	-0.012	0.261	**0.444****	**-0.649*****	-0.057	-0.499
	(-0.094)	(1.539)	(2.145)	(-2.899)	(-0.311)	(-1.051)
IT	-0.162	**0.314***	0.039	**-0.461***	0.107	0.304
	(-1.141)	(1.721)	(0.175)	(-1.941)	(0.547)	(0.286)
MAT	-0.098	**0.345****	0.258	**-0.660*****	0.058	**-0.935***
	(-0.738)	(2.007)	(1.235)	(-2.982)	(0.312)	(-1.854)
TLS	-0.218	**0.367***	**0.447***	**-0.664*****	-0.150	**-1.205****
	(-1.291)	(1.685)	(1.686)	(-2.758)	(-0.640)	(-1.988)
Adjusted R^2	**0.034**	**0.156**	**0.095**	**0.093**	**0.014**	**0.152**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between both debt contracting variables and information risk, where ACCRL is the proxy for information risk. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table J.3: Relationship between Default and Information Risks and Corporate Governance Including Industry Dummies

$$ZSCORE_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$ACCRL_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	ZSCORE	ACCRL
Intercept	**6.610*** **	**2.317*** **
	(9.948)	(4.214)
GOV	**-0.071*** **	**-0.031** **
	(-4.134)	(-2.320)
AGE	-0.003	0.002
	(-1.132)	(1.161)
COLLT	-0.297	-0.173
	(-1.580)	(-1.385)
SIZE	**-0.504*** **	**-0.137*** **
	(-7.106)	(-4.269)
CON	**-1.853*** **	-0.455
	(-4.639)	(-1.149)
STP	**-1.642*** **	-0.414
	(-3.746)	(-1.018)
EGY	**-0.808** **	-0.266
	(-1.961)	(-0.660)
HTH	**-1.448*** **	-0.461
	(-3.465)	(-1.145)
IND	**-1.746*** **	-0.501
	(-4.439)	(-1.291)
IT	**-1.556*** **	-0.432
	(-3.688)	(-1.056)
MAT	**-1.204*** **	-0.318
	(-3.047)	(-0.808)
TLS	**-1.139** **	-0.444
	(-2.295)	(-0.992)
Adjusted R^2	0.291	0.156
N	595	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between both default risk and information risk and corporate governance. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table J.4: Relationship between Corporate Governance and the Debt Contracting Variables Using 2SLS Including Industry Dummies

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	-0.102	**0.896*** **	0.067	**0.679** **	**-0.641***	**12.495*** **
	(-0.431)	(3.516)	(0.171)	(1.977)	(-1.870)	(7.446)
ZSCORE	**0.068*** **	**-0.055** **	-0.030	**0.040*** **	**0.045** **	**0.408*** **
	(5.007)	(-2.517)	(-1.330)	(2.674)	(2.282)	(3.373)
ACCRL	-0.058	**0.101***	-0.062	-0.026	-0.012	**0.653***
	(-1.456)	(1.841)	(-0.932)	(-0.523)	(-0.214)	(1.686)
AGE	-0.0004	**-0.002***	**0.002***	0.0001	-0.0008	0.0001
	(-0.458)	(-1.904)	(1.716)	(0.013)	(-0.650)	(0.007)
COLLT	**0.105***	**0.242*** **	-0.222	-0.057	0.037	-0.614
	(1.787)	(2.845)	(-2.281)	(-0.943)	(0.440)	(-1.187)
SIZE	**0.058*** **	**-0.116*** **	0.014	0.009	**0.093*** **	**-0.543*** **
	(2.785)	(-4.846)	(0.391)	(0.305)	(3.072)	(-3.267)
CON	0.056	**0.173***	0.218	**-0.522** **	0.131	-0.232
	(0.441)	(1.858)	(1.026)	(-2.217)	(0.703)	(-0.365)
STP	0.111	0.032	0.213	-0.381	0.136	-0.436
	(0.816)	(0.388)	(0.941)	(-1.541)	(0.692)	(-0.779)
EGY	0.063	0.148	**0.422***	**-0.717*** **	0.147	1.539
	(0.430)	(1.101)	(1.721)	(-3.114)	(0.688)	(1.267)
HTH	0.046	0.030	0.299	**-0.515** **	0.186	-0.245
	(0.351)	(0.321)	(1.360)	(-2.105)	(0.966)	(-0.296)
IND	0.091	**0.181** **	**0.402***	**-0.586** **	0.003	0.110
	(0.720)	(2.093)	(1.912)	(-2.503)	(0.019)	(0.194)
IT	-0.061	**0.232** **	-0.006	**-0.398***	0.173	0.893
	(-0.452)	(2.045)	(-0.028)	(-1.614)	(0.879)	(0.812)
MAT	0.003	**0.270*** **	0.216	**-0.620*** **	0.134	-0.291
	(0.020)	(3.089)	(1.016)	(-2.673)	(0.720)	(-0.511)
TLS	-0.157	**0.316** **	0.419	**-0.625** **	-0.110	-0.847
	(-0.980)	(2.035)	(1.574)	(-2.507)	(-0.473)	(-1.233)
Adjusted R^2	**0.144**	**0.197**	**0.098**	**0.124**	**0.036**	**0.190**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents 2SLS regression results for the relationship between corporate governance and debt contracting variables where corporate governance is an instrumental variable. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table J.5: Relationship between Corporate Governance and the Debt Contracting Variables Using OLS Including Industry Dummies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.082	**0.965*****	**-0.466****	**0.765*****	-0.263	**13.643*****
	(0.597)	(6.354)	(-2.192)	(3.485)	(-1.443)	(13.133)
GOV	**-0.011*****	0.006	**0.013****	**-0.009***	**-0.010***	**-0.043***
	(-3.165)	(1.216)	(2.348)	(-1.837)	(-1.888)	(-1.696)
AGE	0.0001	**-0.003*****	0.001	0.0007	0.0007	0.0004
	(0.241)	(-4.043)	(1.294)	(0.911)	(0.833)	(0.115)
COLLT	**0.131*****	0.084	-0.061	-0.001	-0.023	-0.082
	(3.370)	(1.493)	(-1.012)	(-0.013)	(-0.410)	(-0.285)
SIZE	**0.054*****	**-0.110*****	**0.081*****	-0.022	**0.051****	**-0.616*****
	(3.658)	(-6.105)	(3.585)	(-0.989)	(2.349)	(-5.454)
CON	-0.030	0.067	0.069	**-0.316****	**0.180***	-0.554
	(-0.365)	(0.993)	(0.539)	(-2.181)	(1.866)	(-1.093)
STP	0.014	-0.012	0.157	**-0.302****	0.157	-0.705
	(0.152)	(-0.167)	(1.119)	(-1.987)	(1.443)	(-1.371)
EGY	-0.012	0.096	0.063	**-0.376*****	**0.216****	-0.097
	(-0.142)	(1.237)	(0.480)	(-2.557)	(2.079)	(-0.172)
HTH	-0.038	**0.141***	0.042	**-0.387*****	**0.203****	-0.479
	(-0.444)	(1.733)	(0.315)	(-2.608)	(1.972)	(-0.781)
IND	-0.053	**0.155****	0.145	**-0.374*****	0.074	-0.098
	(-0.656)	(2.297)	(1.147)	(-2.599)	(0.812)	(-0.200)
IT	-0.110	0.049	0.057	**-0.273***	**0.168***	0.692
	(-1.254)	(0.617)	(0.421)	(-1.786)	(1.629)	(1.090)
MAT	-0.105	**0.286*****	-0.048	**-0.356****	0.117	-0.590
	(-1.286)	(4.038)	(-0.378)	(-2.472)	(1.262)	(-1.160)
TLS	-0.156	0.128	0.013	**-0.367****	**0.225***	-0.308
	(-1.520)	(1.051)	(0.083)	(-2.166)	(1.699)	(-0.398)
Adjusted R^2	**0.074**	**0.119**	**0.098**	**0.020**	**0.014**	**0.104**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table J.6: Impact of Corporate Governance on Debt Contracting Variables for Different Sized Companies Including Industry Dummies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 SIZE_i + \beta_{10} INDUSTRY_i + e_i$$

$$TYPE_{K,i} = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 SIZE_i + \beta_{10} INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 SIZE_i + \beta_{10} INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.471*** **	0.183	0.206	**0.525*** **	0.086	**9.437*** **
	(5.316)	(1.429)	(1.520)	(3.476)	(0.705)	(17.342)
GOV	**-0.007***	-0.003	**0.016** **	-0.004	**-0.009***	**-0.111*** **
	(-1.760)	(-0.465)	(2.451)	(-0.718)	(-1.608)	(-4.019)
SML	0.032	-0.070	-0.073	**0.192** **	-0.049	-0.349
	(0.527)	(-0.792)	(-0.780)	(2.007)	(-0.576)	(-0.739)
LRG	0.006	-0.204	0.005	0.080	0.120	**-2.176*** **
	(0.052)	(-1.328)	(0.029)	(0.500)	(0.818)	(-3.097)
GOV_S	-0.013	**0.035*** **	**-0.022***	-0.020	0.007	**0.174** **
	(-1.405)	(2.722)	(-1.635)	(-1.502)	(0.545)	(2.175)
GOV_L	0.006	0.005	0.005	-0.009	-0.001	**0.134** **
	(0.588)	(0.370)	(0.307)	(-0.627)	(-0.059)	(2.076)
AGE	0.0003	**-0.003*** **	0.001	0.001	0.001	-0.001
	(0.420)	(-3.048)	(1.326)	(0.885)	(0.911)	(-0.195)
COLLT	0.143	0.074	-0.049	-0.008	-0.017	-0.089
	(3.642)	(1.302)	(-0.814)	(-0.161)	(-0.317)	(-0.309)
CON	-0.047	0.076	0.034	**-0.303** **	**0.194***	-0.534
	(-0.565)	(0.630)	(0.262)	(-2.053)	(1.678)	(-1.064)
STP	-0.002	-0.010	0.132	**-0.293***	0.171	-0.727
	(-0.023)	(-0.077)	(0.942)	(-1.887)	(1.352)	(-1.444)
EGY	-0.026	0.102	0.013	**-0.350** **	**0.235** **	-0.139
	(-0.297)	(0.809)	(0.097)	(-2.330)	(1.962)	(-0.250)
HTH	-0.061	0.154	0.017	**-0.374** **	**0.203***	-0.413
	(-0.706)	(1.223)	(0.129)	(-2.488)	(1.697)	(-0.700)
IND	-0.063	0.154	0.112	**-0.359** **	0.094	-0.121
	(-0.765)	(1.284)	(0.885)	(-2.441)	(0.821)	(-0.248)
IT	-0.131	0.067	0.005	**-0.255***	0.183	0.781
	(-1.478)	(0.522)	(0.036)	(-1.640)	(1.503)	(1.236)
MAT	-0.121	**0.295** **	-0.091	**-0.339** **	0.134	-0.571
	(-1.452)	(2.458)	(-0.719)	(-2.309)	(1.175)	(-1.139)
TLS	**-0.185***	0.162	-0.045	**-0.357** **	**0.239***	-0.104
	(-1.788)	(1.082)	(-0.282)	(-2.081)	(1.676)	(-0.135)
Adjusted R^2	**0.066**	**0.127**	**0.114**	**0.023**	**0.010**	**0.107**
N	595	595	595	595	595	595

Notes:

***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and both the access to debt and cost of debt for different sized companies. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity. GOV_S is an interaction term which is measured by multiplying GOV by SML. SML equals one if the company is in the lower quintile and zero otherwise. GOV_L is an interaction term which is measured by multiplying GOV by LRG. LRG equals one if the company is in the upper quintile and zero otherwise.

APPENDIX K: SENSITIVITY ANALYSIS

K.1 ALTERNATIVE MEASURES OF ACCESS TO DEBT

The study uses alternate measures to represent access to quantity and type of debt. Unlike the original measures which were scaled by debt, the new measures are divided by total assets. The following is the calculation for *QUANT, ASFIN, BANK, NONBANK* and *NONINT*.

$$QUANT_i = \frac{IDEBT_i}{ASSET_i} \quad \text{(K.1)}$$

Where:

$QUANT_i$ = Total interest bearing debt divided by total liabilities for firm i.

$IDEBT_i$ = Total interest bearing debt for firm i.

$ASSET_i$ = Total assets for firm i.

$$ASFIN_i = \frac{AFDEBT_i}{ASSET_i} \quad \text{(K.2)}$$

Where:

$ASFIN_i$ = Asset finance debt divided by total interest bearing debt for firm i.

$AFDEBT_i$ = Asset finance debt for firm i which includes hire purchase and finance lease liabilities.

$ASSET_i$ = Total assets for firm i.

$$BANK_i = \frac{BKDEBT_i}{ASSET_i} \quad \text{(K.3)}$$

Where:

$BANK_i$ = Bank debt divided by total interest bearing debt for firm i.

$BKDEBT_i$ = Bank debt for firm i which includes bank loans, facilities, and overdraft.

$ASSET_i$ = Total assets for firm i.

$$NONBANK_i = \frac{NBKDEBT_i}{ASSET_i} \quad \text{(K.4)}$$

Where:

$NONBANK_i$ = Non-bank debt divided by total interest bearing debt for firm i.

$NBKDEBT_i$ = Non-bank debt for firm i which includes loans made by non-bank financial institutions.

$ASSET_i$ = Total assets for firm i.

$$NONINT_i = \frac{NINDEBT_i}{ASSET_i} \quad \text{(K.5)}$$

Where:

$NONINT_i$ = Non-intermediated debt divided by total interest bearing debt for firm i.

$NINDEBT_i$ = Non-intermediated debt for firm i which includes commercial papers, notes, and bond.

$ASSET_i$ = Total assets for firm i

Table K.1: Relationship between Default risk and Debt Contracting Variables (Debt Contracting Variables Scaled by Total Assets)

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**-0.261****	0.015	**-0.225*****	0.087	-0.138	**11.753*****
	(-2.055)	(0.679)	(-2.626)	(0.989)	(-1.357)	(10.688)
ZSCORE	**0.091*****	0.002	**0.011****	**0.043*****	**0.035*****	**0.317*****
	(6.101)	(0.932)	(2.046)	(3.324)	(4.463)	(5.170)
AGE	**0.001****	**-0.0002****	0.0001	**0.001***	0.0003	0.002
	(2.260)	(-2.084)	(0.462)	(1.895)	(1.149)	(0.433)
COLLT	**0.181*****	**0.060*****	0.017	**0.088****	0.016	0.009
	(3.970)	(4.798)	(0.784)	(2.466)	(0.598)	(0.033)
SIZE	**0.042*****	**-0.005****	**0.036*****	-0.007	**0.017***	**-0.501*****
	(2.979)	(-2.040)	(5.112)	(-0.747)	(1.721)	(-4.946)
CON	0.091	**0.019****	0.021	-0.006	0.056	-0.012
	(1.436)	(2.411)	(0.366)	(-0.106)	(0.848)	(-0.021)
STP	0.032	**0.020****	0.020	-0.035	0.028	-0.227
	(0.489)	(2.393)	(0.331)	(-0.628)	(0.422)	(-0.414)
EGY	**-0.100***	0.012	-0.025	**-0.110****	0.022	0.155
	(-1.687)	(1.302)	(-0.435)	(-2.108)	(0.338)	(0.262)
HTH	0.054	**0.029*****	0.001	-0.049	0.073	-0.055
	(0.805)	(3.167)	(0.018)	(-0.873)	(1.082)	(-0.084)
IND	0.078	**0.048*****	0.042	-0.045	0.033	0.419
	(1.200)	(4.753)	(0.710)	(-0.831)	(0.503)	(0.790)
IT	0.072	**0.017****	-0.007	0.040	0.022	**1.139***
	(0.890)	(2.087)	(-0.119)	(0.505)	(0.341)	(1.722)
MAT	-0.052	**0.025*****	-0.026	-0.079	0.028	-0.222
	(-0.831)	(2.720)	(-0.450)	(-1.469)	(0.420)	(-0.412)
TLS	-0.040	**0.021****	-0.010	-0.082	0.030	-0.023
	(-0.539)	(2.227)	(-0.167)	(-1.341)	(0.441)	(-0.028)
Adjusted R^2	**0.208**	**0.149**	**0.086**	**0.105**	**0.071**	**0.133**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between debt contracting variables and default risk, where ZSCORE is the proxy for default risk. The debt contracting variables are divided by total assets. The t-values, given in parenthesis below each estimate are corrected for heteroskedasticity.

Table K.2: Relationship between Information Risk and Debt Contracting Variables (Debt Contracting Variables Scaled by Total Assets)

$$QUANT_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 ACCRL_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.495****	0.057	-0.040	**0.386***	0.092	**14.589*****
	(2.017)	(1.283)	(-0.278)	(1.810)	(0.507)	(8.752)
ACCRL	-0.052	-0.003	-0.015	-0.027	-0.007	**0.824****
	(-1.844)	(-0.464)	(-0.834)	(-1.283)	(-0.367)	(2.035)
AGE	-0.0001	**-0.0002***	0.001	-0.0001	-0.0003	-0.002
	(-0.280)	(-1.625)	(1.129)	(-0.139)	(-1.222)	(-0.380)
COLLT	0.006	**0.086*****	-0.055	-0.007	-0.017	-0.724
	(0.116)	(3.726)	(-1.294)	(-0.215)	(-0.618)	(-1.364)
SIZE	-0.008	**-0.012****	0.009	-0.019	**0.013***	**-0.724*****
	(-0.415)	(-2.452)	(0.637)	(-1.042)	(1.799)	(-4.250)
CON	-0.184	0.027	**0.084*****	-0.156	-0.139	**-0.936***
	(-1.305)	(1.428)	(2.676)	(-1.340)	(-0.830)	(-1.785)
STP	-0.122	**0.033***	0.062	-0.109	-0.107	**-0.909***
	(-0.842)	(1.694)	(1.575)	(-0.920)	(-0.641)	(-1.958)
EGY	-0.176	0.055	**0.077****	**-0.202***	-0.107	1.169
	(-1.226)	(1.260)	(2.195)	(-1.785)	(-0.617)	(0.951)
HTH	-0.164	0.025	**0.089****	-0.158	-0.119	-0.706
	(-1.126)	(1.254)	(2.333)	(-1.331)	(-0.709)	(-0.930)
IND	-0.121	**0.062*****	**0.143*****	-0.180	-0.146	-0.499
	(-0.871)	(2.859)	(5.599)	(-1.559)	(-0.870)	(-1.051)
IT	-0.175	0.030	-0.002	-0.079	-0.124	0.304
	(-1.172)	(1.537)	(-0.054)	(-0.644)	(-0.743)	(0.286)
MAT	-0.180	**0.051****	**0.060****	**-0.186***	-0.104	**-0.935***
	(-1.284)	(2.104)	(2.320)	(-1.635)	(-0.622)	(-1.854)
TLS	**-0.326****	0.037	0.040	**-0.225***	-0.178	**-1.205****
	(-2.298)	(1.503)	(1.205)	(-1.933)	(-1.059)	(-1.988)
Adjusted R^2	**0.003**	**0.185**	**0.067**	**0.038**	**0.017**	**0.153**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between both debt contracting variables and information risk, where ACCRL is the proxy for information risk. The debt contracting variables are divided by total assets. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.3: Impact of Corporate Governance on Debt Contracting Variables Using 2SLS (Debt Contracting Variables Scaled by Total Assets)

$$QUANT_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 ZSCORE_i + \beta_3 ACCRL_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.095	0.023	-0.104	0.217	-0.041	**12.495*****
	(0.504)	(0.518)	(-0.836)	(1.192)	(-0.244)	(7.446)
ZSCORE	**0.077*****	0.007	0.013	**0.031*****	**0.026*****	**0.408*****
	(5.969)	(1.381)	(1.315)	(2.717)	(4.429)	(3.373)
ACCRL	**-0.085*****	-0.006	-0.020	**-0.042****	-0.017	**0.653****
	(-2.905)	(-0.715)	(-1.047)	(-1.765)	(-0.920)	(1.686)
AGE	0.0002	-0.0002	0.001	0.0001	-0.0002	0.0001
	(0.523)	(-1.387)	(1.338)	(0.212)	(-0.860)	(0.007)
COLLT	0.027	**0.087*****	-0.052	0.001	-0.010	-0.614
	(0.591)	(3.760)	(-1.261)	(0.044)	(-0.372)	(-1.187)
SIZE	**0.026****	**-0.009****	0.014	-0.004	**0.025*****	**-0.543*****
	(1.704)	(-2.037)	(1.172)	(-0.249)	(3.523)	(-3.267)
CON	-0.051	**0.038****	**0.105*****	-0.101	-0.093	-0.232
	(-0.403)	(1.703)	(3.379)	(-0.861)	(-0.582)	(-0.365)
STP	-0.031	**0.040****	**0.076****	-0.072	-0.076	-0.436
	(-0.244)	(1.831)	(1.989)	(-0.598)	(-0.474)	(-0.779)
EGY	-0.107	0.061	**0.088****	-0.173	-0.083	1.539
	(-0.824)	(1.356)	(2.436)	(-1.492)	(-0.498)	(1.267)
HTH	-0.076	0.032	**0.103*****	-0.122	-0.089	-0.245
	(-0.580)	(1.456)	(2.795)	(-1.018)	(-0.552)	(-0.296)
IND	-0.006	**0.073*****	**0.163*****	-0.133	-0.109	0.110
	(-0.051)	(2.945)	(4.852)	(-1.134)	(-0.677)	(0.194)
IT	-0.063	**0.040****	0.016	-0.033	-0.086	0.893
	(-0.467)	(1.721)	(0.555)	(-0.256)	(-0.539)	(0.812)
MAT	-0.061	**0.063****	**0.080****	-0.141	-0.062	-0.291
	(-0.484)	(2.085)	(2.886)	(-1.218)	(-0.386)	(-0.511)
TLS	**-0.258****	**0.043****	0.050	**-0.197****	-0.154	-0.847
	(-1.980)	(1.649)	(1.576)	(-1.671)	(-0.956)	(-1.233)
Adjusted R^2	**0.230**	**0.200**	**0.073**	**0.102**	**0.105**	**0.190**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents 2SLS regression results for the relationship between corporate governance and debt contracting variables where corporate governance is an instrumental variable. The debt contracting variables are divided by total assets. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.4: Impact of Corporate Governance on Debt Contracting Variables Using OLS (Debt Contracting Variables Scaled by Total Assets)

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.344***	0.024	**-0.148****	**0.391*****	0.077	**13.643*****
	(1.879)	(1.237)	(-1.904)	(2.712)	(0.668)	(13.133)
GOV	**-0.006***	0.000	0.000	-0.001	**-0.004***	**-0.043***
	(-1.694)	(-0.605)	(-0.191)	(-0.379)	(-1.645)	(-1.696)
AGE	**0.001***	**-0.0001****	0.0001	**0.001***	0.0002	0.0004
	(1.646)	(-2.151)	(0.337)	(1.650)	(0.759)	(0.115)
COLLT	**0.154*****	**0.060*****	0.013	**0.075****	0.005	-0.082
	(3.200)	(4.810)	(0.629)	(2.209)	(0.199)	(-0.285)
SIZE	-0.005	**-0.005****	**0.030*****	**-0.033***	0.003	**-0.616*****
	(-0.238)	(-2.116)	(4.317)	(-1.831)	(0.235)	(-5.454)
CON	-0.079	**0.017****	0.000	**-0.090***	-0.005	-0.554
	(-1.178)	(2.384)	(-0.001)	(-1.674)	(-0.080)	(-1.093)
STP	**-0.118***	**0.017****	0.001	**-0.110***	-0.027	-0.705
	(-1.651)	(2.293)	(0.017)	(-1.932)	(-0.391)	(-1.371)
EGY	**-0.174*****	0.010	-0.034	**-0.145*****	-0.006	-0.097
	(-2.625)	(1.178)	(-0.590)	(-2.807)	(-0.085)	(-0.172)
HTH	-0.078	**0.027*****	-0.016	**-0.115****	0.025	-0.479
	(-1.078)	(3.162)	(-0.269)	(-2.027)	(0.356)	(-0.781)
IND	-0.081	**0.046*****	0.022	**-0.123****	-0.025	-0.098
	(-1.249)	(4.924)	(0.374)	(-2.361)	(-0.379)	(-0.200)
IT	-0.070	**0.015****	-0.025	-0.031	-0.029	0.692
	(-0.874)	(2.021)	(-0.431)	(-0.444)	(-0.428)	(1.090)
MAT	**-0.162****	**0.024*****	-0.040	**-0.132****	-0.014	-0.590
	(-2.416)	(2.803)	(-0.687)	(-2.573)	(-0.201)	(-1.160)
TLS	**-0.146***	**0.020****	-0.024	**-0.138****	-0.003	-0.308
	(-1.783)	(2.1370	(-0.399)	(-2.197)	(-0.044)	(-0.398)
Adjusted R^2	**0.039**	**0.148**	**0.075**	**0.034**	**-0.002**	**0.104**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables. The debt contracting variables are divided by total assets. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.5: Impact of Corporate Governance on Debt Contracting Variables for Different Sized Companies (Debt Contracting Variables Scaled by Total Assets)

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 GOV\_S_i + \beta_6 GOV\_L_i + \beta_7 AGE_i + \beta_8 COLLT_i + \beta_9 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.246*** **	-0.008	0.077	**0.090***	0.087	**9.437*** **
	(3.298)	(-0.850)	(1.317)	(1.679)	(1.177)	(17.342)
GOV	-0.006	0.000	0.001	-0.001	**-0.006***	**-0.111*** **
	(-1.599)	(-0.744)	(0.674)	(-0.711)	(-1.724)	(-4.019)
SML	0.091	0.007	0.020	**0.075***	-0.012	-0.349
	(1.138)	(0.570)	(0.471)	(1.852)	(-0.214)	(-0.739)
LRG	-0.024	**-0.036** **	-0.024	0.037	-0.001	**-2.176*** **
	(-0.282)	(-2.207)	(-0.514)	(0.520)	(-0.021)	(-3.097)
GOV_S	-0.001	-0.001	**-0.009**	0.004	0.005	**0.174** **
	(-0.126)	(-0.556)	(-1.633)	(0.608)	(0.653)	(2.175)
GOV_L	0.008	0.002	0.006	-0.004	0.004	**0.134**
	(1.076)	(1.399)	(1.301)	(-0.562)	(0.844)	(2.076)
AGE	0.001	**-0.0002** **	0.0001	**0.001***	0.0001	-0.001
	(1.528)	(-2.130)	(0.414)	(1.606)	(0.512)	(-0.195)
COLLT	**0.155*** **	**0.061*** **	0.021	**0.068** **	0.006	-0.089
	(3.434)	(4.815)	(0.951)	(2.128)	(0.231)	(-0.309)
CON	-0.051	**0.011***	-0.010	-0.063	0.011	-0.534
	(-0.765)	(1.691)	(-0.176)	(-1.171)	(0.163)	(-1.064)
STP	-0.094	0.012	-0.008	-0.088	-0.010	-0.727
	(-1.318)	(1.571)	(-0.127)	(-1.539)	(-0.149)	(-1.444)
EGY	**-0.138** **	0.004	-0.044	**-0.109** **	0.011	-0.139
	(-2.073)	(0.500)	(-0.769)	(-2.089)	(0.161)	(-0.250)
HTH	-0.057	**0.023*** **	-0.026	**-0.092***	0.038	-0.413
	(-0.790)	(2.691)	(-0.451)	(-1.643)	(0.543)	(-0.700)
IND	-0.048	**0.040*** **	0.016	**-0.096***	-0.007	-0.121
	(-0.713)	(4.526)	(0.267)	(-1.831)	(-0.102)	(-0.248)
IT	-0.029	0.009	-0.037	0.006	-0.006	0.781
	(-0.331)	(1.258)	(-0.639)	(0.074)	(-0.095)	(1.236)
MAT	**-0.127***	**0.018** **	-0.049	**-0.101***	0.005	-0.571
	(-1.922)	(2.274)	(-0.854)	(-1.936)	(0.077)	(-1.139)
TLS	-0.102	0.014	-0.040	**-0.100***	0.023	-0.104
	(-1.337)	(1.547)	(-0.641)	(-1.654)	(0.328)	(-0.135)
Adjusted R^2	**0.053**	**0.153**	**0.077**	**0.048**	**0.004**	**0.107**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and both the access to debt and cost of debt for different sized companies. The regressions include unreported industry dummy variables. The debt contracting variables are divided by total assets. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

K.2 ALTERNATIVE MEASURES OF DEFAULT RISK

The study introduces two additional measures of default risk which are alternate Z-score and times interest earned. The calculation and testing of the two measures are detailed as follows.

The alternate Z-score is calculated by performing a discriminant analysis on 46 failed and 71 non-failed companies in Australia. Table K.6 presents the coefficients for the estimated parameters that are used in the alternate Z-score model.

Table K.6: Discriminant Analysis Results for Default Risk (ZSCORE2)

Variable	Canonical Discriminant Function Coefficients
Constant	0.380
X1	-0.895
X2	1.480
X3	11.797
X5	0.962

Notes:
X1 = Book value of total liabilities divided by book value of total equity.
X2 = Net income divided by total sales
X3 = Earnings before interest and tax divided by total assets
X4 = Sales divided by total assets

The following is the function used to estimate ZSCORE2:

$$ZSCORE2_i = 0.38 - 0.895X_1 + 1.480X_2 + 11.797X_3 - 0.962X_4 \qquad \text{(K.6)}$$

Where:

$ZSCORE2_i$ = Alternate default risk score.

X_1 = Total liabilities/Total equities

X_2 = Net income/Total assets

X_3 = Earnings before interest and taxes/Total assets

X_4 = Sales/Total assets

The model was able to correctly classify 83.8% of the originally grouped cases. A decomposition of the ZSCORE2 shown in Table K.7 reveals that it is mainly driven by debt to equity and sales to asset ratios. The decomposition is conducted by multiplying each of the four ratios by their respective coefficients then dividing the outcome by the total ZSCORE2.

Table K.7: Decomposition of ZSCORE2

Variable	Canonical Discriminant Function Coefficients	Average weight of each ratio
Constant	0.380	0.435
X1	-0.895	-3.614
X2	1.480	0.300
X3	11.797	0.997
X4	0.962	2.882

It can be noted from Table K.7 that X1, total liabilities to total equity ratio, accounts for -361% of the ZSCORE and therefore it is the primary driving factor behind the overall default risk variable. As a result, companies with high liabilities to equity ratio will receive a higher ZSCORE which means they have a higher default risk. Additionally, X4, sales to total assets, also has a significant impact on ZSCORE2 with an average weight of 288% of ZSCORE2. Consequently, companies with greater sales to total assets will have a lower ZSCORE2 and hence a lower default risk.

Table K.8: Relationship between Default risk (ZSCORE2) and Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 ZSCORE\,2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 ZSCORE\,2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 ZSCORE\,2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	-0.013	0.957	-0.273	**0.629*** **	**-0.313***	**12.842*** **
	(-0.0940	(6.124)	(-1.318)	(2.794)	(-1.673)	(12.186)
ZSCORE2	**0.017*** **	-0.006	**-0.027*** **	**0.019*** **	**0.013*** **	**0.103*** **
	(4.524)	(-0.953)	(-4.151)	(4.015)	(2.680)	(3.280)
AGE	0.0003	**-0.003*** **	0.001	0.001	0.001	0.002
	(0.634)	(-4.095)	(0.899)	(1.185)	(1.025)	(0.412)
COLLT	**0.149*** **	0.080	-0.089	0.019	-0.010	0.026
	(3.911)	(1.419)	(-1.473)	(0.389)	(-0.178)	(0.093)
SIZE	**0.057*** **	**-0.104*** **	**0.067*** **	-0.011	**0.049** **	**-0.546*** **
	(4.053)	(-6.084)	(3.184)	(-0.537)	(2.447)	(-5.119)
CON	0.007	0.062	0.000	**-0.267***	0.205	-0.274
	(0.083)	(0.882)	(0.002)	(-1.837)	(2.109)	(-0.528)
STP	0.036	-0.012	0.113	**-0.271***	0.169	-0.522
	(0.391)	(-0.167)	(0.787)	(-1.782)	(1.568)	(-1.009)
EGY	-0.008	0.097	0.056	**-0.372** **	**0.219** **	-0.068
	(-0.085)	(1.236)	(0.420)	(-2.529)	(2.121)	(-0.121)
HTH	-0.021	0.132	0.004	**-0.355** **	**0.219** **	-0.304
	(-0.236)	(1.567)	(0.031)	(-2.389)	(2.113)	(-0.480)
IND	-0.018	**0.149** **	0.080	**-0.328** **	0.098	0.162
	(-0.209)	(2.173)	(0.629)	(-2.268)	(1.063)	(0.324)
IT	-0.086	0.049	0.010	-0.240	**0.181***	0.885
	(-0.991)	(0.627)	(0.075)	(-1.572)	(1.743)	(1.388)
MAT	-0.091	**0.285*** **	-0.072	**-0.339** **	0.126	-0.495
	(-1.085)	(4.003)	(-0.565)	(-2.360)	(1.356)	(-0.972)
TLS	-0.143	0.136	-0.024	**-0.340** **	**0.228***	-0.140
	(-1.502)	(1.076)	(-0.162)	(-2.011)	(1.705)	(-0.176)
Adjusted R^2	**0.088**	**0.117**	**0.118**	**0.035**	**0.016**	**0.117**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between debt contracting variables and cost of debt and default risk, where ZSCORE2 is the proxy for default risk. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

The second additional measure for default risk is TIMES, which is a financial ratio known as times interest earned. Unlike the original Z-score measure, TIMES is not driven by leverage. The ratio assesses the company's ability to repay interest from earnings before interest and tax (Baker and Johnson 1988; Cheng 1988). Companies with higher earnings before interest and tax relative to interest expense can have greater access to debt and borrow at a lower cost. Times interest earned is calculated as follows.

$$TIMES_i = \frac{EBIT_i}{INTEXP_i} \qquad \text{(K.7)}$$

Where:

$TIMES_i$ = Times interest earned for firm i.

$EBIT_i$ = Earnings before interest and tax for firm i.

$INTEXP_i$ = Interest expense and capitalised interest for firm i.

A possible issue that needs to be addressed is the interpretation of the times interest earned ratio. A high times interest earned ratio infers a lower default risk, which could complicate the reading of the results. In order to simplify the interpretation of the results, the study multiplies each company's time interest earned by negative one. As a result, a high interest earned ratio signals a high default risk.

The results in Table K.9 are similar to the original results obtained when ZSCORE is used as a proxy for default risk. TIMES is positively related to QUANT at the 1% significance level. TIMES is also positively related to NONBANK and NONINT at the 1% significance level while it is negatively related to ASFIN at the 1% significance level respectively. Finally, TIMES is positively related to COST at the 5% significance level.

Table K.9: Relationship between Default risk (TIMES) and Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 TIMES_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 TIMES_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 TIMES_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.189	**0.943*****	**-0.589*****	**0.805*****	-0.159	**14.144*****
	(1.438)	(6.501)	(-2.825)	(3.786)	(-0.901)	(14.437)
TIMES	**0.001*****	**-0.001*****	0.0003	**0.0004*****	**0.0004*****	**0.002****
	(4.948)	(-7.013)	(1.311)	(4.506)	(4.607)	(2.454)
AGE	-0.0001	**-0.002*****	0.001	0.001	0.001	-0.001
	(-0.071)	(-3.591)	(1.076)	(0.821)	(0.684)	(-0.269)
COLLT	**0.126*****	0.089	-0.065	0.007	-0.030	-0.069
	(3.269)	(1.610)	(-1.062)	(0.136)	(-0.542)	(-0.237)
SIZE	**0.031****	**-0.102*****	**0.109*****	**-0.036***	0.029	**-0.716*****
	(2.465)	(-6.752)	(5.542)	(-1.894)	(1.604)	(-7.642)
CON	-0.037	0.057	0.104	**-0.328****	**0.168****	-0.562
	(-0.460)	(0.846)	(0.806)	(-2.296)	(1.738)	(-1.129)
STP	-0.001	-0.017	0.187	**-0.311****	0.140	-0.758
	(-0.010)	(-0.239)	(1.325)	(-2.070)	(1.298)	(-1.508)
EGY	-0.0001	0.065	0.083	**-0.380*****	**0.232****	0.055
	(-0.003)	(0.834)	(0.620)	(-2.606)	(2.195)	(0.101)
HTH	-0.047	0.124	0.069	**-0.386*****	**0.193***	-0.521
	(-0.552)	(1.497)	(0.511)	(-2.625)	(1.857)	(-0.848)
IND	-0.064	**0.147****	0.171	**-0.380*****	0.062	-0.139
	(-0.797)	(2.190)	(1.347)	(-2.675)	(0.674)	(-0.289)
IT	-0.111	0.018	0.094	**-0.270***	0.158	0.681
	(-1.290)	(0.235)	(0.691)	(-1.787)	(1.535)	(1.0840
MAT	-0.085	**0.245*****	-0.027	**-0.344****	0.126	-0.529
	(-1.051)	(3.427)	(-0.215)	(-2.411)	(1.353)	(-1.059)
TLS	**-0.167***	0.097	0.071	**-0.373****	0.205	-0.363
	(-1.663)	(0.767)	(0.447)	(-2.238)	(1.556)	(-0.471)
Adjusted R^2	**0.093**	**0.156**	**0.086**	**0.020**	**0.014**	**0.134**
N	585	585	585	585	585	585

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between debt contracting variables and cost of debt and default risk, where TIMES is the proxy for default risk. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

K.3 ALTERNATIVE MEASURES OF INFORMATION RISK

The study tests the robustness of the results by introducing alternate measures for information risk. The information risk variable, ACCRL, is decomposed into innate and discretionary components. Also, two additional measures for information risk are introduced and tested, which are the bid-ask spread and abnormal accruals. The following tables present the results of innate and discretionary parts of accruals quality.

Table K.10: Relationship between Information Risk (ACCRL) and the Five Innate Factors

$$ACCRL_i = \beta_0 + \beta_1 SIZE_i + \beta_2 \sigma(CFO)_i + \beta_3 \sigma(SALES)_i + \beta_4 OPCYCLE_i + \beta_5 LOSS_i + \varepsilon_i$$

	ACCRL
Intercept	**0.878*** **
	(2.839)
SIZE	**-0.078** **
	(-2.331)
σ(CFO)	**1.209*** **
	(5.335)
σ(SALES)	0.085
	(1.128)
OPCYCLE	0.107
	(0.978)
LOSS	0.024
	(0.393)
Adjusted R2	**0.243**
N	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between both ACCRL and the five innate factors. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity. The following are the definitions of the variables:

SIZE = Log of total assets.
σ(CFO) = The standard deviation of cash flow from operations.
σ(SALES) = The standard deviation of sales revenue.
OPCYCLE = Log of the sum of days accounts receivable and days inventory.
LOSS = One if earnings after tax are negative and zero otherwise.

Table K.11: Summary Statistics for the Innate and Discretionary Components of Information risk for All Quintiles

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
			All companies			
INACCRL	205	0.45	0.42	0.24	0.13	1.81
DSACCRL	205	-0.0000001	-0.22	0.99	-3.34	5.17
			Small Companies (1st Quintile)			
INACCRL	41	0.73	0.61	0.34	0.41	1.81
DSACCRL	41	0.08	-0.06	1.17	-3.34	3.71
			Medium Companies (2nd Quintile)			
INACCRL	41	0.49	0.46	0.09	0.36	0.74
DSACCRL	41	0.04	-0.27	1.21	-1.53	4.66
			Medium Companies (3rd Quintile)			
INACCRL	41	0.44	0.41	0.10	0.33	0.82
DSACCRL	41	-0.20	-0.36	0.82	-0.88	2.96
			Medium Companies (4th Quintile)			
INACCRL	41	0.36	0.34	0.09	0.22	0.62
DSACCRL	41	0.06	-0.19	0.99	-0.83	5.17
			Large Companies (5th Quintile)			
INACCRL	41	0.24	0.24	0.08	0.12	0.52
DSACCRL	41	0.02	-0.15	0.65	-0.95	2.58

Notes:
INACCRL = Innate component of accruals quality.
DSACCRL = Discretionary component of accruals quality.

Table K.12: ANOVA Results for the Innate and Discretionary Components of Information risk

Variable	Mean			F Statistic	P value
	Small	Medium	Large		
INACCRL	0.73	0.44	0.24	56.620	**0.000*** **
DSACCRL	0.08	-0.20	0.23	1.147	0.321

Table K.13: Tukey's HSD Post Hoc Test Results for the Innate and Component of Information risk

Variables	Size (A)	Size (B)	Mean Difference (A-B)	Standard Error	Significance
INACCRL	Small	Medium	**0.294*** **	0.046	0.000
		Large	**0.489*** **	0.046	0.000
	Medium	Small	**-0.294*** **	0.046	0.000
		Large	**0.195*** **	0.046	0.000
	Large	Small	**-0.489*** **	0.046	0.000
		Medium	**-0.195*** **	0.046	0.000

Notes:
*** Significant at 1%, two-tailed.

Table K.14: Relationship between the Innate Component of Information Risk and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 INACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 INACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 INACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.539*****	**-0.256*****	0.170	**0.797*****	0.289	**7.878*****
	(4.086)	(-3.576)	(0.808)	(3.528)	(1.575)	(9.001)
INACCRL	**-0.192****	**0.346*****	-0.177	0.013	**-0.181***	**2.399****
	(-2.428)	(3.227)	(-1.408)	(0.111)	(-1.646)	(2.474)
AGE	-0.001	**-0.002****	**0.002***	-0.0002	-0.0002	-0.007
	(-0.884)	(-2.258)	(1.767)	(-0.301)	(-0.172)	(-1.192)
COLLT	0.091	**0.260*****	**-0.225****	-0.073	0.039	-0.581
	(1.488)	(3.205)	(-2.304)	(-1.184)	(0.453)	(-1.036)
CON	-0.050	**0.282*****	0.290	**-0.584*****	0.011	-0.804
	(-0.385)	(4.129)	(1.409)	(-2.648)	(0.063)	(-1.015)
STP	0.045	**0.115****	0.269	**-0.420***	0.036	-0.729
	(0.327)	(2.117)	(1.215)	(-1.831)	(0.186)	(-0.917)
EGY	0.008	0.188	**0.468***	**-0.750*****	0.093	1.040
	(0.054)	(1.453)	(1.922)	(-3.452)	(0.438)	(0.703)
HTH	-0.016	0.112	**0.353***	**-0.552****	0.088	-0.500
	(-0.115)	(1.586)	(1.639)	(-2.412)	(0.466)	(-0.514)
IND	-0.001	**0.264*****	**0.469****	**-0.640*****	-0.093	-0.504
	(-0.005)	(4.549)	(2.301)	(-2.932)	(-0.520)	(-0.659)
IT	-0.141	**0.333*****	0.065	**-0.430***	0.033	0.709
	(-1.017)	(2.808)	(0.293)	(-1.828)	(0.170)	(0.614)
MAT	-0.100	**0.370*****	0.281	**-0.646*****	-0.005	-0.871
	(-0.767)	(4.779)	(1.351)	(-2.950)	(-0.030)	(-1.088)
TLS	-0.192	**0.365*****	**0.479***	**-0.652*****	-0.192	-1.150
	(-1.160)	(3.097)	(1.820)	(-2.748)	(-0.836)	(-1.289)
Adjusted R^2	**0.057**	**0.132**	**0.091**	**0.100**	**-0.004**	**0.087**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the innate component of information risk, INACCRL, and the debt contracting variables and information risk. INACCRL and SIZE are highly correlated (ρ = -0.715) at the 1% significance level and hence the presence of SIZE in the regression estimation caused INACCRL to be insignificant. The study removes SIZE whenever INACCRL is present in the regression model. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.15: Relationship between the Discretionary Component of Information Risk and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 DSACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 DSACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 DSACCRL_i + \beta_3 ZSCORE_i + \beta_4 AGE_i + \beta_5 COLLT_i + \beta_6 SIZE_i + \beta_7 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.150	**0.771*****	-0.206	**0.920*****	**-0.485***	**15.511*****
	(0.685)	(2.727)	(-0.598)	(2.945)	(-1.633)	(10.884)
DSACCRL	0.010	0.058	-0.077	0.008	0.011	**1.027****
	(0.208)	(0.975)	(-1.067)	(0.145)	(0.178)	(2.491)
AGE	-0.001	-0.002	**0.003***	-0.0001	-0.001	-0.003
	(-0.848)	(-1.298)	(1.758)	(-0.114)	(-0.715)	(-0.573)
COLLT	**0.104***	**0.239*****	**-0.222****	-0.075	0.057	-0.667
	(1.670)	(2.978)	(-2.262)	(-1.225)	(0.673)	(-1.283)
SIZE	**0.035***	**-0.104*****	0.038	-0.014	**0.079*****	**-0.807*****
	(1.772)	(-4.054)	(1.226)	(-0.496)	(2.946)	(-5.123)
CON	-0.039	0.257	0.268	**-0.592*****	0.067	-0.792
	(-0.294)	(1.490)	(1.276)	(-2.632)	(0.369)	(-1.537)
STP	0.052	0.089	0.245	**-0.430***	0.096	**-0.744***
	(0.365)	(0.478)	(1.088)	(-1.824)	(0.493)	(-1.607)
EGY	0.013	0.193	**0.450***	**-0.750*****	0.107	1.231
	(0.081)	(0.964)	(1.838)	(-3.426)	(0.506)	(0.999)
HTH	-0.009	0.083	0.329	**-0.563****	0.150	-0.531
	(-0.067)	(0.463)	(1.498)	(-2.394)	(0.792)	(-0.685)
IND	0.010	0.249	0.442	**-0.646*****	-0.046	-0.367
	(0.077)	(1.461)	(2.124)	(-2.887)	(-0.256)	(-0.786)
IT	-0.138	**0.306***	0.036	**-0.442***	0.100	0.696
	(-0.962)	(1.651)	(0.159)	(-1.839)	(0.516)	(0.650)
MAT	-0.096	**0.349***	0.267	**-0.653*****	0.038	**-0.919***
	(-0.720)	(2.024)	(1.269)	(-2.953)	(0.207)	(-1.823)
TLS	-0.192	**0.356***	**0.438***	**-0.661*****	-0.133	-0.971
	(-1.131)	(1.624)	(1.638)	(-2.731)	(-0.578)	(-1.599)
Adjusted R^2	**0.039**	**0.158**	**0.094**	**0.097**	**0.021**	**0.158**
N	205	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the discretionary component of information risk, DSACCRL, and the debt contracting variables. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Hypothesis two states that information risk is related to the debt contracting variables. The results presented in Table 4.20 indicate that ACCRL is positively related to ASFIN and COST. To test the sensitivity of the results, the study uses ACCRL2 and ACCRL3 as alternate measures for information risk. ACCRL2 is the ask-bid spread which represents information asymmetry (Francis and Martin 2010; LaFond and Watts 2008) while ACCRL3 focuses on abnormal accruals which is a proxy for information risk (Dechow, Sloan, and Sweeney 1995; DeFond and Jiambalvo 1994; Subramanyam 1996; Bartov, Gul, and Tsui 2000).

Uncertainty in the information environment leads to an increase in the bid-ask spread in the market. The firm's accounting information quality impacts the overall information environment thus affecting the firm's trading activity. A decrease in information asymmetry results in a reduction in the bid-ask spread. In accordance with LaFond and Watts (2008) and Francis and Martin (2010) bid-ask spread is used as a proxy for information asymmetry. The current research assumes that information risk is represented by ACCRL2 which is the bid-ask spread.

$$ACCRL2_i = \frac{ASK_i - BID_i}{LASSET_i} \qquad \text{(K.8)}$$

Where:

$ACCRL2_i$ = Information asymmetry firm i.

ASK_i = Ask price for firm i.

BID_i = Bid price for firm i.

$LASSET_i$ = Log of total assets for firm i.

The study estimate regression analysis to investigate the relationship between information risk, represented by ACRRL2, and the debt contracting variable for 493 companies. The results reported in Table K.16 suggest that the direction of the relationship between ACCRL2 and COST is in line with the original results obtained by using ACCRL. This suggests that an increase in information risk raises cost of debt. However, the relationship is not statistically significant.

Table K.16: Relationship between Information Risk (ACCRL2) and Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 ACCRL2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 ACCRL2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 ACCRL2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.204	**1.073*****	**-0.657*****	**0.609*****	-0.024	**13.881*****
	(1.393)	(6.360)	(-2.905)	(2.644)	(-0.121)	(13.125)
ACCRL2	0.004	**-0.012*****	**0.021****	-0.005	-0.003	0.061
	(0.666)	(-2.728)	(2.152)	(-1.506)	(-0.359)	(0.849)
AGE	-0.0001	**-0.003******	0.001	0.001	0.001	-0.001
	(-0.161)	(-3.638)	(1.092)	(0.792)	(0.839)	(-0.368)
COLLT	**0.156*****	0.075	-0.099	0.020	0.004	-0.126
	(3.617)	(1.202)	(-1.479)	(0.367)	(0.069)	(-0.385)
SIZE	**0.028****	**-0.114*****	**0.121*****	-0.020	0.013	**-0.713*****
	(2.057)	(-6.591)	(5.667)	(-0.988)	(0.633)	(-6.869)
CON	-0.035	0.046	0.068	**-0.263***	0.148	-0.234
	(-0.402)	(0.596)	(0.503)	(-1.721)	(1.387)	(-0.490)
STP	-0.054	-0.003	0.125	-0.238	0.116	-0.661
	(-0.545)	(-0.034)	(0.825)	(-1.471)	(0.967)	(-1.404)
EGY	-0.025	0.071	0.036	**-0.308****	**0.201***	0.097
	(-0.276)	(0.820)	(0.257)	(-1.988)	(1.772)	(0.183)
HTH	-0.080	0.143	0.064	**-0.339****	0.132	-0.054
	(-0.864)	(1.558)	(0.453)	(-2.176)	(1.185)	(-0.092)
IND	-0.084	**0.152****	0.152	**-0.342****	0.038	0.066
	(-0.971)	(2.020)	(1.141)	(-2.271)	(0.379)	(0.148)
IT	-0.143	-0.005	0.069	-0.225	0.161	0.836
	(-1.523)	(-0.058)	(0.479)	(-1.391)	(1.388)	(1.252)
MAT	-0.105	**0.254*****	-0.055	**-0.295****	0.096	-0.321
	(-1.205)	(3.173)	(-0.408)	(-1.949)	(0.930)	(-0.681)
TLS	**-0.229****	0.181	0.050	-0.281	0.051	0.321
	(-2.073)	(1.290)	(0.292)	(-1.533)	(0.389)	(0.549)
Adjusted R^2	**0.063**	**0.137**	**0.101**	**0.010**	**0.0003**	**0.107**
N	493	493	493	493	493	493

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between debt contracting variables and information risk, where ACCRL2 (measured using the ask-bid spread) is the proxy for information risk. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

ACCRL3 is measured as the difference between total working capital accruals and expected working capital accruals using a cross sectional version of the modified-Jones model (Dechow et al. 1995; DeFond and Jiambalvo 1994; Subramanyam 1996; Bartov et al. 2000).

The abnormal accruals model assumes that total accruals are separated into discretionary accruals (DACL) and non-discretionary accruals (NDACL) where a high level of discretionary accruals suggests the presence of information risk. The calculation is partitioned into two steps. The first step is to estimate an expectation model where non-discretionary accruals are a function of change in revenue and are adjusted for change in accounts receivable and the level of plant, property and equipment. The following is the model used to calculate NDACL.

$$NDACL_{i,j,t} = \hat{\beta}_1\left[1 / A_{i,j,t-1}\right] + \hat{\beta}_2\left[(\Delta REV_{i,j,t} - \Delta REC_{i,j,t}) / A_{i,j,t-1}\right] + \hat{\beta}_3\left[PPE_{i,j,t} / A_{i,j,t-1}\right]$$

(K.9a)

Where $\hat{\beta}_1$, $\hat{\beta}_2$ and $\hat{\beta}_3$ are fitted coefficients from equation K.9a. The coefficients are estimated for each industry separately.

$$TACL_{i,j,t} / A_{i,j,t-1} = \beta_1\left[1 / A_{i,j,t-1}\right] + \beta_2\left[\Delta REV_{i,j,t} / A_{i,j,t-1}\right] + \beta_3\left[PPE_{i,j,t} / A_{i,j,t-1}\right] + \varepsilon_{i,j,t}$$

(K.9b)

Where,

$TACL_{i,t}$ = Total accruals for the ith firm from industry j in year t.

Total accruals are measured as change in current assets - change in cash - change in current liabilities + change in short-term debt + depreciation and amortization expense.

$\Delta REV_{i,t}$ = Change in revenue for the ith firm from industry j in year t.

$\Delta REC_{i,t}$ = Change in accounts receivable for the ith firm from industry in year t.

$A_{i,j,t-1}$ = Total assets for the ith company from industry j at the end of the previous year.

$PPE_{i,t}$ = Property, plant, and equipment for the ith company for year t.

ε_t = Firm specific residual for the ith company for year t.

The second step is to calculate DACL which is measured as the difference between TACL and NDACL. The following equation shows the calculation for DACL.

$$DACL_{i,j,t} = TACL_{i,j,t} - NDACL_{i,j,t}$$

(K.9c)

Where $DACL_{i,t}$ = Difference between total accruals and non-discretionary accruals for the ith firm from industry j in year t.

The estimation of the industry-specific coefficients to calculate abnormal accruals are shown in Table K.17. The relationship between information risk, represented by ACRRL3, and the debt contracting variables is examined for 446 companies. The regression results reported in Table K.18 suggest that ACCRL3 is not related to any of the debt contracting variables.

Table K.17: Industry-Specific Coefficients estimated to calculate Abnormal Accruals (Information Risk)

	Dependent Variable = WCA							
Variable	Consumer Discretionary	Consumer Staples	Energy	Health Care	Industrials	Information Technology	Materials	Telecom & Utilities
Intercept	0.002	-0.007	-0.018	-0.019	-0.016	-0.029	-0.014	-0.030
	(0.197)	(-1.242)	(-0.108)	(-1.562)	(-3.028)	(-2.872)	(-1.099)	(-2.222)
$1/TA_{t-1}$	-0.380	0.030	0.048	-0.507	-0.276	-0.417	0.014	-0.197
	(-4.256)	(0.192)	(0.282)	(-4.217)	(-3.708)	(-3.261)	(0.145)	(-1.293)
ΔREV-ΔAR	0.080	-0.081	-0.236	0.029	0.095	-0.200	0.021	-0.218
	(0.926)	(-0.527)	(-1.331)	(0.240)	(1.280)	(-1.571)	(0.228)	(-1.439)
ΔPPE	-0.384	-0.400	-0.490	-0.187	-0.633	-0.237	-0.655	-0.319
	(-4.290)	(-2.568)	(-2.734)	(-1.599)	(-8.948)	(-1.872)	(-6.996)	(-2.108)
Adjusted R^2 Squared	**0.341**	**0.112**	**0.134**	**0.241**	**0.462**	**0.234**	**0.412**	**0.099**

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
WCA = Change in current assets - change in cash - change in current liabilities + change in short-term debt.
ΔREV-ΔAR = change in revenue less change in accounts receivable.
PPE= gross property, plant and equipment
TA_{t-1} = total assets at the end of the previous year.
Due to the low number of companies in the telecommunication and utilities industries the two sectors are combined into one sector.

Table K.18: Relationship between Information Risk (ACCRL3) and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 ACCRL3_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 ACCRL3_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 ACCRL3_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.095	**0.922*****	**-0.453***	**0.823*****	-0.293	**15.460*****
	(0.613)	(5.329)	(-1.817)	(3.401)	(-1.408)	(14.900)
ACCRL3	0.010	0.024	-0.031	-0.026	0.033	-0.052
	(0.154)	(0.323)	(-0.302)	(-0.424)	(0.330)	(-0.096)
AGE	0.0002	**-0.002*****	0.001	0.001	0.000	0.001
	(0.329)	(-3.492)	(1.285)	(0.935)	(0.331)	(0.296)
COLLT	**0.142*****	0.096	-0.128	0.026	0.006	-0.317
	(2.680)	(1.332)	(-1.504)	(0.428)	(0.079)	(-0.681)
SIZE	**0.034****	**-0.096*****	**0.100*****	**-0.048****	**0.044****	**-0.862*****
	(2.385)	(-5.588)	(4.392)	(-2.379)	(2.207)	(-8.627)
CON	-0.013	0.082	0.057	**-0.274***	0.135	-0.798
	(-0.132)	(0.972)	(0.375)	(-1.635)	(1.084)	(-1.599)
STP	0.058	-0.055	0.109	-0.176	0.121	-0.627
	(0.565)	(-0.664)	(0.660)	(-0.993)	(0.895)	(-1.285)
EGY	0.031	0.086	-0.014	**-0.283***	0.211	0.017
	(0.314)	(0.882)	(-0.089)	(-1.644)	(1.601)	(0.030)
HTH	-0.011	0.134	-0.018	**-0.319***	0.203	-0.572
	(-0.114)	(1.348)	(-0.113)	(-1.848)	(1.544)	(-0.911)
IND	-0.019	0.128	0.132	**-0.307***	0.047	-0.249
	(-0.207)	(1.535)	(0.873)	(-1.842)	(0.396)	(-0.537)
IT	-0.067	0.072	-0.015	-0.201	0.144	0.584
	(-0.672)	(0.740)	(-0.093)	(-1.137)	(1.097)	(0.890)
MAT	-0.060	**0.202****	-0.015	**-0.286***	0.099	-0.465
	(-0.623)	(2.194)	(-0.098)	(-1.705)	(0.792)	(-0.916)
TLS	-0.137	0.147	0.013	-0.307	0.147	-0.759
	(-1.220)	(1.083)	(0.075)	(-1.605)	(0.978)	(-0.973)
Adjusted R^2	**0.056**	**0.088**	**0.065**	**0.012**	**0.008**	**0.143**
N	446	446	446	446	446	446

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between debt contracting variables and information risk, where ACCRL3 is the proxy for information risk (measured sing the Modified Jones Model). The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

K.4 ALTERNATIVE MEASURE FOR CORPORATE GOVERNANCE

An alternate corporate governance measure, GOV2, is introduced and tested. GOV2 represents a corporate governance score which ranges from zero to 140, where 140 is the highest score that can be achieved. The following tables show the results for the relationship between the alternate corporate governance variable, the different risk assessment measures and the debt contracting variables.

Table K.19: Relationship between Default Risk (ZSCORE and ZSCORE2) and Corporate Governance (GOV and GOV2)

$$ZSCORE_{R,i} = \beta_1 + \beta_2 GOV_{R,i} + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Default Risk		
Variable	ZSCORE	ZSCORE2	ZSCORE2
Intercept	**6.833*** **	**11.636*** **	**11.106*** **
	(10.098)	(9.511)	(9.304)
GOV			**-0.092** **
			(-2.447)
GOV2	**-0.008** **	-0.006	
	(-2.480)	(-0.876)	
AGE	-0.003	-0.009	**-0.009***
	(-0.965)	(-1.520)	(-1.626)
COLLT	**-0.304***	**-1.113** **	**-1.102** **
	(-1.604)	(-2.546)	(-2.521)
SIZE	**-0.555*** **	**-1.503*** **	**-1.386*** **
	(-7.569)	(-9.970)	(-9.743)
CON	**-1.919*** **	**-3.561*** **	**-3.431*** **
	(-4.764)	(-5.684)	(-5.428)
STP	**-1.695*** **	**-2.569*** **	**-2.454*** **
	(-3.829)	(-3.414)	(-3.247)
EGY	**-0.809** **	-0.366	0.358
	(-1.944)	(-0.566)	(-0.546)
HTH	**-1.486*** **	**-2.268*** **	**-2.178*** **
	(-3.520)	(-3.333)	(-3.182)
IND	**-1.807*** **	**-3.212*** **	**-3.101*** **
	(-4.557)	(-5.184)	(-4.941)
IT	**-1.622*** **	**-2.751*** **	**-2.620*** **
	(-3.809)	(-3.814)	(-3.630)
MAT	**-1.221*** **	**-1.186***	**-1.150***
	(-3.062)	(-1.885)	(-1.804)
TLS	**-1.251** **	**-3.057*** **	**-2.839** **
	(-2.501)	(-2.693)	(-2.471)
Adjusted R^2	**0.278**	**0.355**	**0.360**
N	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between both default risk and information risk and corporate governance. GOV_R refers to GOV and GOV2. $ZSCORE_R$ refers to ZSCORE and ZSCORE2. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.20: Relationship between the Innate and Discretionary Components of Information Risk and Corporate Governance (GOV and GOV2)

$$ACCRL_i = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$INACCRL_i = \beta_1 + \beta_2 GOV_{R,i} + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$DSACCRL_i = \beta_1 + \beta_2 GOV_{R,i} + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

	ACCRL	INACCRL	INACCRL	DSACCRL	DSACCRL
Intercept	**1.237*** **	**0.601*** **	**0.607*** **	0.540	**0.677*** **
	(4.859)	(4.817)	(4.818)	(1.071)	(3.020)
GOV		**-0.019*** **		**-0.037*** **	
		(-3.814)		(-2.778)	
GOV2	**-0.007*** **		**-0.003*** **		**-0.004*** **
	(-4.007)		(-3.757)		(-2.718)
AGE	0.0005	**-0.002*** **	**-0.002*** **	0.002	**0.003*** **
	(0.287)	(-2.935)	(-2.638)	(1.496)	(1.815)
COLLT	-0.150	-0.059	-0.049	-0.147	-0.123
	(-1.368)	(-1.087)	(-0.908)	(-1.257)	(-1.275)
SIZE				0.029	
				(0.857)	
CON	-0.381	0.122	0.100	-0.449	**-0.492** **
	(-1.636)	(1.069)	(0.873)	(-1.279)	(-2.416)
STP	-0.299	0.176	0.162	-0.429	**-0.469** **
	(-1.196)	(1.442)	(1.322)	(-1.164)	(-2.148)
EGY	-0.269	0.033	0.018	-0.259	-0.288
	(-0.977)	(0.247)	(0.131)	(-0.727)	(-1.196)
HTH	-0.346	0.157	0.147	-0.490	**-0.507** **
	(-1.421)	(1.318)	(1.231)	(-1.377)	(-2.378)
IND	**-0.452** **	0.093	0.071	-0.489	**-0.531*** **
	(-1.956)	(0.825)	(0.624)	(-1.421)	(-2.627)
IT	-0.301	**0.221** *	**0.208** *	-0.493	**-0.528** **
	(-1.216)	(1.815)	(1.703)	(-1.364)	(-2.430)
MAT	-0.258	0.113	0.095	-0.306	**-0.339** *
	(-1.096)	(0.982)	(0.816)	(-0.879)	(-1.643)
TLS	-0.332	**0.272** *	**0.240** *	-0.492	**-0.579** **
	(-1.126)	(1.879)	(1.658)	(-1.358)	(-2.243)
Adjusted R^2	**0.067**	**0.157**	**0.155**	**0.074**	**0.046**
N	205	205	205	205	205

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the innate and discretionary components of information risk and corporate governance. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity. SIZE is only included in the regressions that exclude GOV2 and INACCRL due to the high correlation between SIZE and GOV2 and INACCRL. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.21: Relationship between Corporate Governance (GOV2) and the Debt Contracting Variables

$$QUANT_i = \beta_1 + \beta_2 GOV\ 2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 GOV\ 2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 GOV\ 2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 SIZE_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	0.105	**0.983*****	**-0.534****	**0.765*****	-0.214	**13.783*****
	(0.753)	(6.349)	(-2.479)	(3.426)	(-1.128)	(12.891)
GOV2	**-0.001****	0.001	0.001	**-0.001***	-0.001	-0.005
	(-2.218)	(1.412)	(0.977)	(-1.605)	(-0.873)	(-0.959)
AGE	0.000	**-0.003*****	0.001	0.001	0.001	0.001
	(0.367)	(-4.112)	(1.210)	(1.003)	(0.904)	(0.189)
COLLT	**0.130*****	0.085	-0.059	-0.001	-0.024	-0.087
	(3.327)	(1.508)	(-0.984)	(-0.029)	(-0.431)	(-0.300)
SIZE	**0.048*****	**-0.114*****	**0.097*****	-0.022	**0.040***	**-0.648*****
	(3.180)	(-6.001)	(4.128)	(-0.966)	(1.745)	(-5.270)
CON	-0.038	0.066	0.086	**-0.319****	**0.167***	-0.595
	(-0.463)	(0.987)	(0.670)	(-2.218)	(1.721)	(-1.184)
STP	0.008	-0.015	0.172	**-0.303****	0.146	-0.738
	(0.086)	(-0.208)	(1.220)	(-2.005)	(1.335)	(-1.444)
EGY	-0.012	0.095	0.064	**-0.376****	**0.216****	-0.097
	(-0.138)	(1.229)	(0.485)	(-2.567)	(2.068)	(-0.175)
HTH	-0.042	**0.138***	0.054	**-0.387*****	**0.195***	-0.503
	(-0.486)	(1.701)	(0.400)	(-2.620)	(1.876)	(-0.826)
IND	-0.062	**0.155****	0.159	**-0.378*****	0.063	-0.136
	(-0.753)	(2.332)	(1.261)	(-2.646)	(0.686)	(-0.280)
IT	-0.118	0.047	0.074	**-0.276***	0.155	0.652
	(-1.340)	(0.601)	(0.546)	(-1.814)	(1.495)	(1.040)
MAT	-0.107	**0.285*****	-0.043	**-0.356****	0.114	-0.601
	(-1.305)	(4.058)	(-0.339)	(-2.492)	(1.218)	(-1.194)
TLS	**-0.170***	0.127	0.042	**-0.372****	0.204	-0.378
	(-1.652)	(1.050)	(0.263)	(-2.212)	(1.517)	(-0.491)
Adjusted R^2	**0.066**	**0.120**	**0.091**	**0.018**	**0.007**	**0.120**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables where GOV2 is the proxy for corporate governance. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.22: Relationship between Corporate Governance (GOV2) and the Debt Contracting Variables (Without size)

$$QUANT_i = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

$$TYPE_{R,i} = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 GOV2_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.460*****	**0.142****	0.179	**0.599*****	0.080	**8.989*****
	(5.483)	(2.077)	(1.371)	(5.330)	(0.838)	(14.555)
GOV2	-0.0003	**-0.001***	**0.003*****	**-0.002*****	0.0001	**-0.020*****
	(-0.542)	(-1.778)	(3.873)	(-2.719)	(0.125)	(-5.368)
AGE	0.001	**-0.004*****	**0.002****	0.001	0.001	-0.004
	(0.996)	(-5.240)	(2.023)	(0.752)	(1.257)	(-1.124)
COLLT	**0.146*****	0.048	-0.028	-0.009	-0.011	-0.297
	(3.727)	(0.820)	(-0.463)	(-0.166)	(-0.199)	(-1.011)
CON	-0.086	**0.179*****	-0.010	**-0.297*****	0.128	0.048
	(-1.047)	(2.807)	(-0.076)	(-2.697)	(1.346)	(0.083)
STP	-0.045	**0.111***	0.066	**-0.278****	0.102	-0.023
	(-0.500)	(1.768)	(0.467)	(-2.302)	(0.954)	(-0.039)
EGY	-0.050	**0.186****	-0.012	**-0.358*****	**0.184***	0.417
	(-0.584)	(2.499)	(-0.092)	(-3.124)	(1.776)	(0.654)
HTH	-0.108	**0.293*****	-0.077	**-0.357*****	0.141	0.377
	(-1.262)	(3.780)	(-0.582)	(-3.126)	(1.396)	(0.553)
IND	-0.103	**0.252*****	0.077	**-0.358*****	0.029	0.418
	(-1.262)	(4.123)	(0.608)	(-3.293)	(0.322)	(0.735)
IT	**-0.178****	**0.190*****	-0.047	**-0.248****	0.105	**1.465****
	(-2.061)	(2.553)	(-0.350)	(-2.145)	(1.044)	(2.105)
MAT	**-0.153***	**0.395*****	-0.136	**-0.335*****	0.076	0.023
	(-1.883)	(5.984)	(-1.072)	(-3.068)	(0.828)	(0.039)
TLS	**-0.244****	**0.302*****	-0.107	**-0.338****	0.143	0.621
	(-2.414)	(2.581)	(-0.678)	(-2.494)	(1.093)	(0.763)
Adjusted R^2	**0.052**	**0.081**	**0.066**	**0.018**	**0.003**	**0.062**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between the alternate corporate governance measure and debt contracting variables excluding the size control variable. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

K.5 ALTERNATIVE MEASURES FOR COMPANY SIZE

The robustness of the results for the relationship between higher levels of corporate governance and debt contracting for different size firms is assessed by introducing additional tests. The first test excludes the governance-size interaction terms and replaces them with small and large company size dummies. The second test excludes the small and large size dummies and introduces a dummy variable that show if a company belongs to the Top 300 companies on the ASX. The final test is run only on small companies to assess whether higher levels of corporate governance has any differential impact on small companies in isolation of other companies. The following table present the result for the different tests.

Table K.23: Impact of Corporate Governance on Debt Contracting Variables for Small and Large Companies Including Industry Dummies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 AGE_i + \beta_6 COLLT_i + \beta_7 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 AGE_i + \beta_6 COLLT_i + \beta_7 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 SML_i + \beta_4 LRG_i + \beta_5 AGE_i + \beta_6 COLLT_i + \beta_7 INDUSTRY_i + e_i$$

	Quantity Accessed	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.476*** **	**0.130***	**0.225***	**0.566*** **	0.079	**8.978*** **
	(5.556)	(1.736)	(1.719)	(3.843)	(0.672)	(16.725)
GOV	**-0.009** **	0.004	**0.012** **	**-0.009***	**-0.008***	**-0.059** **
	(-2.547)	(0.860)	(2.361)	(-1.883)	(-1.737)	(-2.357)
SML	-0.039	**0.140*** **	**-0.202*** **	**0.072***	-0.009	**0.738*** **
	(-1.329)	(2.842)	(-4.496)	(1.671)	(-0.231)	(2.741)
LRG	**0.072** **	**-0.166*** **	0.063	-0.006	**0.108*** **	**-0.857*** **
	(2.394)	(-5.196)	(1.383)	(-0.145)	(2.620)	(-3.977)
AGE	0.0003	**-0.003*** **	0.001	0.001	0.001	-0.001
	(0.498)	(-4.210)	(1.396)	(0.894)	(0.894)	(-0.158)
COLLT	**0.140*** **	0.071	-0.052	-0.003	-0.017	-0.162
	(3.589)	91.266)	(-0.868)	(-0.066)	(-0.311)	(-0.567)
CON	-0.040	0.070	0.042	**-0.304** **	**0.191***	-0.490
	(-0.480)	(1.047)	(0.333)	(-2.087)	(1.665)	(-0.953)
STP	0.005	-0.016	0.142	**-0.294***	0.169	-0.681
	(0.059)	(-0.235)	(1.011)	(-1.927)	(1.338)	(-1.306)
EGY	-0.019	0.104	0.020	**-0.357** **	**0.234** **	-0.022
	(-0.216)	(1.298)	(0.150)	(-2.417)	(1.965)	(-0.039)
HTH	-0.058	**0.156** **	0.020	**-0.378*** **	**0.203***	-0.344
	(-0.670)	(1.953)	(0.149)	(-2.547)	(1.698)	(-0.572)
IND	-0.058	**0.151** **	0.118	**-0.361** **	0.092	-0.077
	(-0.704)	(2.249)	(0.934)	(-2.487)	(0.810)	(-0.155)
IT	-0.124	0.060	0.014	**-0.255***	0.181	0.810
	(-1.402)	(0.760)	(0.103)	(-1.656)	(1.489)	(1.257)
MAT	-0.114	**0.291*** **	-0.083	**-0.340** **	0.132	-0.522
	(-1.373)	(4.085)	(-0.655)	(-2.349)	(1.162)	(-1.017)
TLS	**-0.176***	0.144	-0.030	**-0.349** **	**0.235***	-0.158
	(-1.699)	(1.159)	(-0.190)	(-2.061)	(1.651)	(-0.203)
Adjusted R^2	**0.064**	**0.119**	**0.112**	**0.022**	**0.013**	**0.099**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables for different sized companies. The regressions include unreported industry dummy variables. SML is a dummy variable that equals one if the company is classed as small and zero otherwise. LRG is a dummy variable that equals one if a company is classed as large and zero otherwise. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.24: Relationship between Corporate Governance and the Debt Contracting Variables for the Top300 Companies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 TOP300_i + \beta_6 INDUSTRY_i + e_i$$

$$TYPE_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 TOP300_i + \beta_6 INDUSTRY_i + e_i$$

$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 TOP300_i + \beta_6 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.470*****	**0.169*****	0.120	**0.600*****	0.111	**9.156*****
	(5.627)	(2.579)	(0.926)	(5.337)	(1.167)	(15.226)
GOV	**-0.007****	-0.003	**0.020*****	**-0.012*****	-0.005	**-0.101*****
	(-2.080)	(-0.582)	(3.941)	(-2.774)	(-0.982)	(-4.672)
AGE	0.0004	**-0.003*****	**0.002***	0.0004	0.001	-0.003
	(0.678)	(-4.751)	(1.681)	(0.599)	(1.248)	(-0.808)
COLLT	**0.146*****	0.053	-0.038	-0.008	-0.007	-0.264
	(3.766)	(0.933)	(-0.635)	(-0.154)	(-0.126)	(-0.898)
TOP300	**0.069****	**-0.154*****	**0.117*****	0.007	0.029	**-0.632*****
	(2.303)	(-4.616)	(2.550)	(0.174)	(0.742)	(-3.009)
CON	-0.061	**0.127****	0.026	**-0.291*****	0.138	-0.140
	(-0.745)	(2.095)	(0.205)	(-2.620)	(1.466)	(-0.241)
STP	-0.020	0.053	0.111	**-0.275****	0.111	-0.259
	(-0.220)	(0.847)	(0.794)	(-2.255)	(1.051)	(-0.443)
EGY	-0.037	**0.144****	0.029	**-0.357*****	**0.183***	0.232
	(-0.433)	(2.001)	(0.221)	(-3.099)	(1.788)	(0.369)
HTH	-0.085	**0.232*****	-0.023	**-0.354*****	0.145	0.116
	(-0.992)	(3.094)	(-0.173)	(-3.075)	(1.452)	(0.172)
IND	-0.080	**0.205*****	0.109	**-0.351*****	0.037	0.258
	(-0.983)	(3.500)	(0.863)	(-3.204)	(0.420)	(0.456)
IT	**-0.147***	0.119	0.006	**-0.241****	0.116	**1.195***
	(-1.690)	(1.588)	(0.048)	(-2.062)	(1.155)	(1.718)
MAT	**-0.134***	**0.341*****	-0.087	**-0.331*****	0.077	-0.202
	(-1.643)	(5.368)	(-0.689)	(-3.013)	(0.852)	(-0.346)
TLS	**-0.208****	**0.228****	-0.058	**-0.328****	0.158	0.364
	(-2.043)	(2.019)	(-0.372)	(-2.395)	(1.230)	(0.445)
Adjusted R^2	**0.061**	**0.098**	**0.088**	**0.018**	**0.004**	**0.074**
N	595	595	595	595	595	595

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and both access to debt and cost of debt. T300 is a dummy variable which equals one if the company is in the Top300 listed companies on the ASX and zero otherwise. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.

Table K.25: Impact of Corporate Governance on the Debt Contracting Variables for Small Companies Including Industry Dummies

$$QUANT_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$TYPE_{R,i} = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$
$$COST_i = \beta_1 + \beta_2 GOV_i + \beta_3 AGE_i + \beta_4 COLLT_i + \beta_5 INDUSTRY_i + e_i$$

	Quantity of Debt	Type of Debt				Cost of Debt
Variables	QUANT	ASFIN	BANK	NONBANK	NONINT	COST
Intercept	**0.512***	-0.134	-0.006	**1.105*****	0.035	**12.039*****
	(1.878)	(-0.2920	(-0.085)	(2.664)	(0.093)	(27.187)
GOV	**-0.016***	**0.034****	-0.007	**-0.024***	-0.003	0.030
	(-1.859)	(2.343)	(-0.688)	(-1.863)	(-0.252)	(0.400)
AGE	**0.005***	**-0.008***	**0.005***	0.004	-0.002	-0.022
	(1.929)	(-1.853)	(1.773)	(1.078)	(-0.480)	(-1.131)
COLLT	0.114	0.017	-0.114	0.229	-0.132	-1.098
	(1.078)	(0.096)	(-1.032)	(1.428)	(-0.911)	(-1.302)
CON	-0.248	0.406	**0.142***	**-0.811***	0.263	**-2.783*****
	(-0.901)	(0.875)	(1.783)	(-1.937)	(0.697)	(-5.178)
STP	0.022	0.203	**0.375****	**-0.803***	0.226	**-3.419*****
	(0.076)	(0.422)	(2.503)	(-1.849)	(0.576)	(-5.903)
EGY	-0.091	0.456	-0.018	**-0.800***	0.362	**-2.707*****
	(-0.314)	(0.937)	(-0.353)	(-1.819)	(0.911)	(-3.405)
HTH	-0.089	0.488	0.045	**-0.859****	0.325	**-2.477*****
	(-0.325)	(1.061)	(1.338)	(-2.066)	(0.868)	(-2.864)
IND	-0.249	0.429	**0.283****	**-0.817***	0.105	**-1.333***
	(-0.898)	(0.920)	(2.443)	(-1.940)	(0.276)	(-1.712)
IT	-0.195	0.480	0.075	-0.685	0.130	**-1.978****
	(-0.697)	(1.019)	(0.865)	(-1.610)	(0.340)	(-2.414)
MAT	-0.165	0.673	0.016	**-0.843****	0.154	**-3.221*****
	(-0.607)	(1.469)	(0.422)	(-2.038)	(0.414)	(-8.158)
TLS	-0.317	0.166	0.128	**-1.078****	**0.785***	**-1.669****
	(-1.052)	(0.327)	(0.853)	(-2.354)	(1.900)	(-2.479)
Adjusted R^2	**0.067**	**0.077**	**0.096**	**0.031**	**0.052**	**0.008**
N	119	119	119	119	119	119

Notes:
***, **, * Significant at 1%, 5%, 10%, two-tailed respectively.
This table presents regression results for the relationship between corporate governance and debt contracting variables for small companies only. SIZE is excluded because the analysis is applied to small firms only. The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity.